RIDOT Bridge Inspection Report

020001
Washington Bridge South

Inspected By GREEN
Inspector: Hugo Ortega
Inspection Date 11/01/2024

Bridge Condition Fair

IDENTIFICATION

Bridge ID:	020001
NBI Number	Washington Bridge South
Structure Name:	Washington Bridge South
Location (9):	1.0 Mi E of JCT I-95 &195
Carries (7):	I-195 EB and WB
Type of Service (42A):	1 Highway
Feature Crossed (6):	SEEKONK RVR & STS
Type of Service (42B):	6 Highway-waterway
Placecode (4):	East Providence
County (3):	Providence
State (1):	44 Rhode Island
Station:	NBI
Region (2):	District 3
Latitude (16):	41.8190048
Longitude (17):	-71.3868191
Owner (22):	01 State Highway Agency
Custodian (21):	01 State Highway Agency

Year Built (27):	1930	Border State: Not Applicable (P)	
Year Recon (106):	2008	Border Number:	
Historical (37):	5 Not eligible for NRHP	% Responsibility:	

INSPECTION

Date of Routine Inspection (90): 11/1/2024
Frequency (91): 12
Next Inspection: 11/1/2025

Inspection Type	Freq (92)	Last Insp (93)	Next Insp
Element	12	11/1/2024	11/1/2025
Fracture Critical (A)		1/1/1901	1/1/1901
Underwater (B)	48	2/9/2024	2/9/2028
Special Insp (C)	6	11/1/2024	5/1/2025

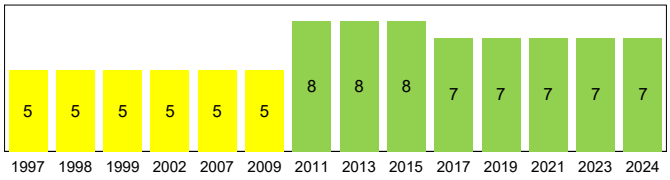
LOAD RATING AND POSTING

Posting Status (41)	A Open, no restriction
Posting % (70):	5 At/Above Legal Loads
Rating Date:	3/27/2024
Design Load (31):	9 MS22.5(HS25)or greater
Opr Method (63):	8 LRFR (HL93)
Opr Rating (64):	31.70 Tons
Inv Method (65):	8 LRFR (HL93)
Inv Rating (66):	24.50 Tons

Complex Feature B.IR.01: N
NSTM B.IR.04: N

DECK GEOMETRY

Deck Geometry (68):	4 Tolerable
Deck Area:	119,461.50
Deck Type (107):	1 Concrete-Cast-in-Place
Wearing Surface (108A):	1 Monolithic Concrete
Membrane (108B):	0 None
Deck Protection (108C):	1 Epoxy Coated Reinforci
O. to O. Width (52):	71.50
Curb / Sidewalk Width L (50A):	0.00
Curb / Sidewalk Width R (50B):	0.00
Median (33):	0 No median

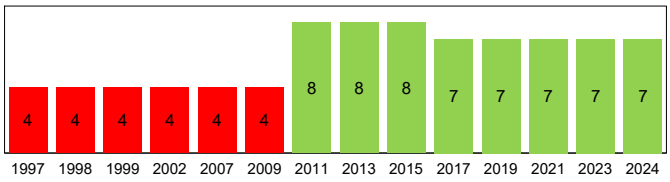


DECK CONDITION

Deck Rating (58):	7 Good
Bridge Rail (36A):	1 Meets Standards
Transition (36B):	1 Meets Standards
Approach Rail (36C):	1 Meets Standards
Approach Rail Ends (36D):	1 Meets Standards

SUPERSTRUCTURE GEOMETRY

# of Main Spans (45):	14
# of Approach Spans (46):	0
Main Material (43 A):	4 Steel Continuous
Main Design (43 B):	02 Stringer/Girder
Max Span Length (48):	160.37
Structure Length (49):	1,670.79
NBIS Length (112):	Long Enough
Temp Structure (103):	Not Applicable (P)
Skew (34):	0
Structure Flared (35):	1 Yes, flared
Parallel Structure (101):	Right of || bridge
Approach Alignment (72):	6 Equal Min Criteria



SUPERSTRUCTURE CONDITION

Superstructure Rating (59):	7 Good
Structure Evaluation (67):	5 Above Min Tolerable

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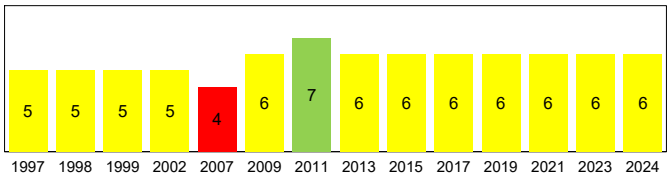
SUBSTRUCTURE GEOMETRY

Navigation Control (38):	Permit Required
Nav Vert Clearance (39):	134.52
Nav Horiz Clearance (40):	321.85
Pier Protection (111):	2 In-Place, Functioning
Lift Bridge Vertical Clearance (116):	
Scour Rating (113):	3 SC - Unstable
Waterway Adequacy (71):	9 Above Desirable



SUBSTRUCTURE CONDITION

Substructure Rating (60):	6 Satisfactory
Channel Rating (61):	6 Bank Slumping

1ST ROUTE UNDER: Gano Street

ROADWAY LOCATION

Pos Prefix (5A):	1st Route Under
Kind of Hwy (5B):	5 City Street
Route Num (5D):	0
LRS Route (13A/B):	
Milepost (11):	
Suffix (5E):	0 N/A (NBI)
Lanes Under (28B):	2
Detour Length (19):	0.00 mi (0.00 km)

ROADWAY CLASSIFICATION

Funct Class (26):	17 Urban Collector
Level Service (5C):	1 Mainline
NHS (104):	0 Not on NHS
Defense Hwy (100):	0 Not a STRAHNET hwy
Toll Facility (20):	3 On free road
ADT (29):	18,300 Cars/Day
Pct Trucks (109):	13.00%
ADT Year (30):	2023

CLEARANCES

Vertical (10):	26.58	
Min Vert Over (53):	17.00	20.45
Vert Ref (54A):	H Hwy beneath struct	
Horizontal (47):	89.00	
Min Lat Left (56):	0.00	
Min Lat Right (55B):	14.50	
Horiz Ref (55A):	H Hwy beneath struct	
Underclearance (69):	9 Above Desirable	

2ND ROUTE UNDER: Water Street

ROADWAY LOCATION

Pos Prefix (5A):	2nd Route Under
Kind of Hwy (5B):	5 City Street
Route Num (5D):	0
LRS Route (13A/B):	
Milepost (11):	
Suffix (5E):	0 N/A (NBI)
Lanes Under (28B):	2
Detour Length (19):	0.00 mi (0.00 km)

ROADWAY CLASSIFICATION

Funct Class (26):	19 Urban Local
Level Service (5C):	1 Mainline
NHS (104):	0 Not on NHS
Defense Hwy (100):	0 Not a STRAHNET hwy
Toll Facility (20):	3 On free road
ADT (29):	81,000 Cars/Day
Pct Trucks (109):	13.00%
ADT Year (30):	2021

CLEARANCES

Vertical (10):	27.79	
Min Vert Over (53):	17.00	20.45
Vert Ref (54A):	H Hwy beneath struct	
Horizontal (47):	27.50	
Min Lat Left (56):	0.00	
Min Lat Right (55B):	14.50	
Horiz Ref (55A):	H Hwy beneath struct	
Underclearance (69):	9 Above Desirable	

3RD ROUTE UNDER: Waterfront Drive

ROADWAY LOCATION

Pos Prefix (5A):	3rd Route Under
Kind of Hwy (5B):	5 City Street
Route Num (5D):	0
LRS Route (13A/B):	
Milepost (11):	
Suffix (5E):	0 N/A (NBI)
Lanes Under (28B):	2
Detour Length (19):	0.00 mi (0.00 km)

ROADWAY CLASSIFICATION

Funct Class (26):	19 Urban Local
Level Service (5C):	2 Alternate
NHS (104):	0 Not on NHS
Defense Hwy (100):	0 Not a STRAHNET hwy
Toll Facility (20):	3 On free road
ADT (29):	81,000 Cars/Day
Pct Trucks (109):	13.00%
ADT Year (30):	2021

CLEARANCES

Vertical (10):	20.83	
Min Vert Over (53):	17.00	20.45
Vert Ref (54A):	H Hwy beneath struct	
Horizontal (47):	35.50	
Min Lat Left (56):	0.00	
Min Lat Right (55B):	14.50	
Horiz Ref (55A):	H Hwy beneath struct	
Underclearance (69):	9 Above Desirable	

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ROUTE ON STRUCTURE: I-195 EB and WB

ROADWAY LOCATION		ROADWAY CLASSIFICATION		CLEARANCES		
Pos Prefix (5A):	Route On Structure	**Funct Class (26):**	11 Urban Interstate	**Vertical (10):**	99.99	
Kind of Hwy (5B):	1 Interstate Hwy	**Level Service (5C):**	1 Mainline	**Min Vert Over (53):**	17.00	20.45
Route Num (5D):	00195	**NHS (104):**	1 On the NHS	**Vert Ref (54A):**	H Hwy beneath struct	
LRS Route (13A/B):	40068660A/00	**Defense Hwy (100):**	1 On Interstate STRAHNET	**Horizontal (47):**	83.80	
Milepost (11):	0.80 mi (1.29 km)	**Toll Facility (20):**	3 On free road	**Min Lat Left (56):**	0.00	
Suffix (5E):	2 East	**ADT (29):**	120,000 Cars/Day	**Min Lat Right (55B):**	14.50	
Lanes On (28A):	5	**Pct Trucks (109):**	13.00%	**Horiz Ref (55A):**	H Hwy beneath struct	
Detour Length (19):	1.90 mi (3.06 km)	**ADT Year (30):**	2021	**Underclearance (69):**	9 Above Desirable	

BRIDGE NOTES

EQUIPMENT: 85’ Manlift and barge mounted 85’ Manlift.
TRAFFIC CONTROL: Alternating single lane nighttime closures in both directions of Interstate 195. Alternating single lane nighttime closures of Gano Street, Water Street and Waterfront Drive.
POLICE DETAIL: Provided by the City of Providence, the City of East Providence, and State Police.
SITE ACCESS: Parking is available within the lane closures for the topside inspection. The underside of Spans 1-3 and 11-14 were inspected with an 85’ manlift. The underside inspections of Spans 1 and 14 required nighttime lane closures. The underside of Spans 4-10 were inspected with a barge mounted 85’ manlift.

ORIENTATION: The bridge is logged from west to east. The superstructure consists of ten (10) continuous welded steel plate girders labeled Girder A through J from north to south. The southeast corner of Span 14 includes two (2) additional kicker beams labeled Beams K and L. The interior diaphragms within each span are numbered from west to east. The Seekonk River flows from north to south below the structure. The orientation is consistent with the previous inspection report.

INSPECTION NOTES

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ROUTINE INSPECTION ON: 10/21/2024 (Day and Night), 10/22/2024 (Night), 10/23/2024 (Night), 10/24/2024 (Day and Night), 10/28/2024 (Day), 10/29/2024 (Day), 10/30/2024 (Day), 10/31/2024 (Day), 11/01/2024 (Day), and 11/26/2024 (Night)
TEAM LEADERS: Hugo Ortega, EIT and Stephen Bibinski, EIT
STAFF INSPECTORS: Nicholas Arena, EIT and Nicholas Schur, EIT

FOLLOW-UP INSPECTION: A follow-up inspection on the scuppers was performed on 11/26/2024 to confirm the repairs were completed by Matthew LaPlante, PE and Nicholas Schur, EIT.

WEATHER: 82°F, Clear (10/21/2024), 53°F, Clear (10/22/2024), 55°F, Partly Cloudy (10/23/2024), 71°F, Partly Cloudy (10/24/2024), 54°F, Partly Cloudy (10/28/2024), 55°F, Partly Cloudy (10/29/2024), 70°F, Partly Cloudy (10/30/2024), 78°F, Partly Cloudy (10/31/2024), 80°F, Partly Cloudy (11/01/2024); 38°F, Fair (11/26/2024)

NBI RATING SUMMARY: The NBI Ratings for the Deck (Item 58) (7-Good), Superstructure (Item 59) (7-Good) and Substructure (Item 60) (6-Satisfactory) have not changed since the previous inspection.

RIDOT MAINTENANCE: During the duration of this inspection, RIDOT Maintenance was on-site performing repairs and routine maintenance.

DEFLECTION AND VIBRATION: Moderate deflection and vibration was noted during this inspection. The deflection and vibration was within normal tolerances.

VERTICAL CLEARANCES: The minimum vertical underclearance for Gano Street in Span 1 of 26.13’ (26’-1”) was taken below Girder J along the left curb line. Span 1 has a vertical clearance sign posted for 26'-1" attached to the south face of Girder J (Photo 7). The minimum vertical underclearance for Water Street in Span 14 of 27.74’ (27’-8”) was taken below Girder J along the right curb line. Span 14 has a vertical clearance sign posted over Water Street posted for 27'-2" attached to the south face of Girder J (Photo 287). The minimum vertical underclearance for Waterfront Drive in Span 14 of 20.45’ (20’-5”) was taken below the light fixture near Girder I along the left shoulder line.

The previous inspection report on 7/21/2023 and the inspection prior on 7/23/2021 noted numerous cross frame welded connection plates to the girders that had defects consisting of incomplete fusion. These welds were noted to have no defects and showed no changes since the previous two (2) inspections. It has been determined that the welds were shop repaired which requires mag particle testing before acceptance and the previously noted “defects” were shop repairs performed prior to delivery. The previously included table associated with these cracks has been removed for simplification.

UTILITIES: The exterior face of both railings at Pier 4 and the exterior face of the south railing at Pier 9, the electrical conduit flexible couplings at the joints are torn and detached (Photos 288-290). In Span 12, there is a cable secured along Interior Diaphragm 2 in Bays A through H (Photo 45). The conduit mounted to the underside of Girder G in Span 14 near Interior Diaphragm 3 has moderate corrosion on the north end.

Refer to the attached document labeled "020001-2024-11-01-Additional Inspection Notes.pdf" for additional notes that could not be input into BrM due to the character limits.

Elm/Env	Description	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4
12/3	Re Concrete Deck	119,494.0(	0%	0.00	100%	119,486.00	0%	8.00	0%	0.00
1080/3	Delamination/Spall/Patched Area	18.00	0%	0.00	56%	10.00	44%	8.00	0%	0.00
1090/3	Exposed Rebar	10.00	0%	0.00	100%	10.00	0%	0.00	0%	0.00
1120/3	Efflorescence/Rust Staining	1.00	0%	0.00	100%	1.00	0%	0.00	0%	0.00
1130/3	Cracking (RC and Other)	119,465.00	0%	0.00	100%	119,465.00	0%	0.00	0%	0.00
8382/3	Stay-in-Place Form	97,500.00	95%	93,000.00	4%	4,300.00	0%	200.00	0%	0.00
1000/3	*Corrosion*	*4,500.00*	0%	0.00	96%	4,300.00	4%	200.00	0%	0.00
107/3	Steel Opn Girder/Beam	16,364.00	98%	16,113.00	1%	229.00	0%	22.00	0%	0.00
515/3	Steel Protective Coating	247,490.00	98%	242,475.00	2%	5,000.00	0%	0.00	0%	15.00
3420/3	*Peel/Bub/Crack(Stl Protect Coat)*	*2,515.00*	0%	0.00	99%	2,500.00	0%	0.00	1%	15.00
3430/3	*Ox Flm/Txt Adhr(Stl Prot Coat)*	*2,500.00*	0%	0.00	100%	2,500.00	0%	0.00	0%	0.00

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Elm/Env	Description	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4
1000/3	Corrosion	216.00	0%	0.00	93%	200.00	7%	16.00	0%	0.00
1020/3	Connection	12.00	0%	0.00	50%	6.00	50%	6.00	0%	0.00
1900/3	Distortion	20.00	0%	0.00	100%	20.00	0%	0.00	0%	0.00
7000/3	Damage	3.00	0%	0.00	100%	3.00	0%	0.00	0%	0.00
205/3	Re Conc Column	39.00	92%	36.00	8%	3.00	0%	0.00	0%	0.00
1130/3	Cracking (RC and Other)	3.00	0%	0.00	100%	3.00	0%	0.00	0%	0.00
8368/3	Graffiti	1,190.00	66%	790.00	34%	400.00	0%	0.00	0%	0.00
210/3	Re Conc Pier Wall	587.00	43%	254.00	53%	311.00	4%	22.00	0%	0.00
1080/3	Delamination/Spall/Patched Area	40.00	0%	0.00	50%	20.00	50%	20.00	0%	0.00
1090/3	Exposed Rebar	2.00	0%	0.00	100%	2.00	0%	0.00	0%	0.00
1120/3	Efflorescence/Rust Staining	1.00	0%	0.00	100%	1.00	0%	0.00	0%	0.00
1130/3	Cracking (RC and Other)	179.00	0%	0.00	100%	179.00	0%	0.00	0%	0.00
1190/3	Abrasion(PSC/RC)	10.00	0%	0.00	80%	8.00	20%	2.00	0%	0.00
4000/3	Settlement	1.00	0%	0.00	100%	1.00	0%	0.00	0%	0.00
6000/3	Scour	100.00	0%	0.00	100%	100.00	0%	0.00	0%	0.00
8368/3	Graffiti	3,240.00	0%	0.00	100%	3,240.00	0%	0.00	0%	0.00
215/3	Re Conc Abutment	171.00	31%	53.00	67%	115.00	2%	3.00	0%	0.00
1080/3	Delamination/Spall/Patched Area	2.00	0%	0.00	100%	2.00	0%	0.00	0%	0.00
1120/3	Efflorescence/Rust Staining	56.00	0%	0.00	95%	53.00	5%	3.00	0%	0.00
1130/3	Cracking (RC and Other)	60.00	0%	0.00	100%	60.00	0%	0.00	0%	0.00
220/3	Re Conc Pile Cap/Ftg	218.00	0%	1.00	99%	215.00	1%	2.00	0%	0.00
1130/3	Cracking (RC and Other)	1.00	0%	0.00	100%	1.00	0%	0.00	0%	0.00
1190/3	Abrasion(PSC/RC)	62.00	0%	0.00	97%	60.00	3%	2.00	0%	0.00
6000/3	Scour	154.00	0%	0.00	100%	154.00	0%	0.00	0%	0.00
225/3	Steel Pile	6.00	83%	5.00	0%	0.00	17%	1.00	0%	0.00
1000/3	Corrosion	1.00	0%	0.00	0%	0.00	100%	1.00	0%	0.00
234/3	Re Conc Pier Cap	920.00	77%	705.00	23%	214.00	0%	1.00	0%	0.00
1080/3	Delamination/Spall/Patched Area	5.00	0%	0.00	80%	4.00	20%	1.00	0%	0.00
1120/3	Efflorescence/Rust Staining	10.00	0%	0.00	100%	10.00	0%	0.00	0%	0.00
1130/3	Cracking (RC and Other)	200.00	0%	0.00	100%	200.00	0%	0.00	0%	0.00
300/3	Strip Seal Exp Joint	68.00	0%	0.00	34%	23.00	66%	45.00	0%	0.00
2340/3	Seal Cracking	44.00	0%	0.00	0%	0.00	100%	44.00	0%	0.00
2350/3	Debris Impaction	23.00	0%	0.00	100%	23.00	0%	0.00	0%	0.00
2370/3	Metal Deterioration or Damage	1.00	0%	0.00	0%	0.00	100%	1.00	0%	0.00
301/3	Pourable Joint Seal	161.00	78%	125.00	0%	0.00	22%	36.00	0%	0.00
2330/3	Seal Damage	2.00	0%	0.00	0%	0.00	100%	2.00	0%	0.00
2350/3	Debris Impaction	25.00	0%	0.00	0%	0.00	100%	25.00	0%	0.00
2360/3	Adjacent Deck or Header	9.00	0%	0.00	0%	0.00	100%	9.00	0%	0.00
303/3	Assem Jnt With Seal	220.00	0%	0.00	80%	176.00	1%	2.00	19%	42.00
2340/3	Seal Cracking	42.00	0%	0.00	0%	0.00	0%	0.00	100%	42.00
2350/3	Debris Impaction	171.00	0%	0.00	100%	171.00	0%	0.00	0%	0.00
2360/3	Adjacent Deck or Header	2.00	0%	0.00	0%	0.00	100%	2.00	0%	0.00
2370/3	Metal Deterioration or Damage	5.00	0%	0.00	100%	5.00	0%	0.00	0%	0.00
321/3	Re Conc Approach Slab	2,212.00	48%	1,052.00	52%	1,160.00	0%	0.00	0%	0.00
510/3	Wearing Surfaces	782.00	100%	782.00	0%	0.00	0%	0.00	0%	0.00
1130/3	Cracking (RC and Other)	100.00	0%	0.00	100%	100.00	0%	0.00	0%	0.00
1190/3	Abrasion(PSC/RC)	1,060.00	0%	0.00	100%	1,060.00	0%	0.00	0%	0.00
331/3	Re Conc Bridge Railing	3,318.00	63%	2,103.00	37%	1,215.00	0%	0.00	0%	0.00

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Elm/Env	Description	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4
1120/3	Efflorescence/Rust Staining	200.00	0%	0.00	100%	200.00	0%	0.00	0%	0.00
1130/3	Cracking (RC and Other)	1,000.00	0%	0.00	100%	1,000.00	0%	0.00	0%	0.00
7000/3	Damage	15.00	0%	0.00	100%	15.00	0%	0.00	0%	0.00
8060/3	**Scupper**	**26.00**	**46%**	**12.00**	**4%**	**1.00**	**15%**	**4.00**	**35%**	**9.00**
2210/3	Movement	4.00	0%	0.00	0%	0.00	100%	4.00	0%	0.00
7000/3	Damage	10.00	0%	0.00	10%	1.00	0%	0.00	90%	9.00
8107/3	**Steel Opn Girder/Beam END**	**310.00**	**97%**	**300.00**	**3%**	**10.00**	**0%**	**0.00**	**0%**	**0.00**
515/3	Steel Protective Coating	3,710.00	99%	3,660.00	1%	40.00	0%	0.00	0%	10.00
3420/3	*Peel/Bub/Crack(Stl Protect Coat)*	*50.00*	0%	0.00	80%	40.00	0%	0.00	20%	10.00
1000/3	Corrosion	10.00	0%	0.00	100%	10.00	0%	0.00	0%	0.00
8213/3	**R/C Return Wall**	**70.00**	**93%**	**65.00**	**7%**	**5.00**	**0%**	**0.00**	**0%**	**0.00**
1130/3	Cracking (RC and Other)	5.00	0%	0.00	100%	5.00	0%	0.00	0%	0.00
8218/3	**Backwall, All Types**	**171.00**	**94%**	**160.00**	**5%**	**9.00**	**1%**	**2.00**	**0%**	**0.00**
1080/3	Delamination/Spall/Patched Area	2.00	0%	0.00	0%	0.00	100%	2.00	0%	0.00
1120/3	Efflorescence/Rust Staining	1.00	0%	0.00	100%	1.00	0%	0.00	0%	0.00
1130/3	Cracking (RC and Other)	8.00	0%	0.00	100%	8.00	0%	0.00	0%	0.00
8316/3	**Isolation Bearing**	**172.00**	**12%**	**21.00**	**81%**	**139.00**	**7%**	**12.00**	**0%**	**0.00**
515/3	Steel Protective Coating	516.00	84%	435.00	13%	66.00	0%	0.00	3%	15.00
3420/3	*Peel/Bub/Crack(Stl Protect Coat)*	*81.00*	0%	0.00	81%	66.00	0%	0.00	19%	15.00
1000/3	Corrosion	42.00	0%	0.00	100%	42.00	0%	0.00	0%	0.00
1020/3	Connection	57.00	0%	0.00	79%	45.00	21%	12.00	0%	0.00
2220/3	Alignment	10.00	0%	0.00	100%	10.00	0%	0.00	0%	0.00
2230/3	Bulging, Splitting or Tearing	2.00	0%	0.00	100%	2.00	0%	0.00	0%	0.00
2240/3	Loss of Bearing Area	40.00	0%	0.00	100%	40.00	0%	0.00	0%	0.00
8370/3	**Steel Diaphragms**	**805.00**	**99%**	**795.00**	**1%**	**10.00**	**0%**	**0.00**	**0%**	**0.00**
515/3	Steel Protective Coating	24,200.00	98%	23,695.00	2%	500.00	0%	0.00	0%	5.00
3420/3	*Peel/Bub/Crack(Stl Protect Coat)*	*255.00*	0%	0.00	98%	250.00	0%	0.00	2%	5.00
3430/3	*Ox Flm/Txt Adhr(Stl Prot Coat)*	*250.00*	0%	0.00	100%	250.00	0%	0.00	0%	0.00
1000/3	Corrosion	6.00	0%	0.00	100%	6.00	0%	0.00	0%	0.00
1020/3	Connection	4.00	0%	0.00	100%	4.00	0%	0.00	0%	0.00

ELEMENT NOTES

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
12	Re Concrete Deck	3	119,494.00	sq.ft	0.00	119,486.00	8.00	0.00

The top of the grooved reinforced concrete deck is bare, with a sacrificial integral wearing surface. The top of deck has minor wear in the wheel lines, minor chips and scrapes in the grooves, minor sand/debris accumulation in the shoulders, cracks and scattered spalls (Photos 14-17, 20-23, and 25-33). During this inspection, a concern was reported to RIDOT regarding a dip at Pier 4 in the Eastbound right lane. After investigating, it was determined that the cause of this issue is related to the design of the slope of the deck at the scupper (as-built) condition to allow for proper drainage away from the Pier 4 joint. For this inspection report, defects for the top of deck will be noted in the westbound or eastbound lanes, due to the recent change in traffic configuration. The top of deck was scanned by Infrasense to determined defects on the top of deck using ground penetrating radar (GPR), infrared thermography (IR), and high-resolution video (HRV). The underside of the deck is covered with stay-in-place forms except for in Bay G and both overhangs (Photos 34-47). The forms have isolated areas of light to heavy corrosion with isolated areas of up to 100% section loss (Photos 38, 48-50, 54, 55, 57, 59-64, 66-71, 75, and 77). The exposed portions of the underside of the deck have hairline transverse cracks with and without efflorescence, isolated minor spalls/areas of scaling and temporary barrier anchor bolt holes left from construction (Photos 51-53, 56, 58, 65, 72-74, and 76).

1080	Delamination/Spall/Patched Are	3	18.00	sq.ft	0.00	10.00	8.00	0.00

Top of Deck:
• All spans, along previous temporary median barrier, there are scattered spalls surrounding the previous anchor bolt holes up to 1'-0" diameter x 1" deep (Photos 25 and 28).

Westbound Lanes:
• In Span 12, the right lane near Pier 12 has a 1'-0" long x 1'-4" wide concrete repair patch with a 1'-0" long x 5" wide x 3/4" deep spall and hairline map cracking (Photo 26).

Eastbound Lanes:
• In Span 1, the center lane near Pier 1 has a 1'-2" long x 2'-2" wide delaminated area with a 5" long x 8" wide x 1/2" deep spall (Photo 29).
• In Span 12, the center lane near Pier 12 has four (4) up to 7" long x 3" wide x 1" deep spalls (Photo 31).
• In Span 12, the center lane near Pier 12 has a 1'-8" long x 10” wide patch with 1/2” deep edge spalling (Photo 31).
• In Span 13, the center lane near Pier 13 has a 1'-0" long x 6" wide patch with minor edge spalls up to 1/4" deep (Photo 32).
• In Span 14, the right exit lane has a 1'-1” long x 1'-4” wide x 1” deep spall with exposed rebar and an adjacent 1'-0" diameter bituminous concrete patch (Photo 33).

Underside of Deck:
Along the underside of deck in Bay G, there are mostly sealed previous temporary barrier anchor bolt holes along the full-length of the bridge along the north side of the longitudinal cold joint. There are a few scattered anchor bolts that remain in place and scattered temporary barrier anchor bolt holes that have signs of previous leakage (Photos 52, 53, 58, 65, 72, 73, and 76).

Span 3:
• The underside of deck in Bay G just west of Interior Diaphragm 4 has a 3” long x 8” wide x 1/2” deep spall with exposed rebar (Photo 52).

Span 4:
• The underside of deck in Bay G at Pier 4 along the longitudinal cold joint has an 8” long x 3” wide x 1” deep spall (Photo 56).

Span 9:
• The underside of deck in Bay G just west of the field splice has a previous anchor bolt hole that is not patched (open to the topside) with active leakage (Photo 65).

Span 11:
• The underside of deck in Bay A between Interior Diaphragms 1 and 2 has a 3” long x 7” wide x 2” deep spall with exposed rebar within an area of 100% loss to the stay-in-place form (Photo 67).

Span 13:
• The underside of deck in Bay G near Pier 13 has a 5” long x 2” wide x 1/2” deep shallow rebar spall (Photo 72).
• The underside of deck in Bay G near the Interior Diaphragm 1 has a 3’-6” long x 2’-6” wide x up to 1/4” deep area of spalling/scaling (Photo 73).

Span 14:
• The north overhang at East Abutment 2 has a 3” long x 2-1/2” high x 2” deep spall (Photo 74).
• The underside of deck in Bay G along the longitudinal cold joint has areas of chipping concrete throughout (Photo 76).

1090	Exposed Rebar	3	10.00	sq.ft	0.00	10.00	0.00	0.00

Refer to Defect 1080 for comments.

1120	Efflorescence/Rust Staining	3	1.00	sq.ft	0.00	1.00	0.00	0.00

Refer to Defect 1130 for comments.

1130	Cracking (RC and Other)	3	119,465.00	sq.ft	0.00	119,465.00	0.00	0.00

Top of Deck:
• The top of the exposed deck has full-width transverse hairline to 1/16" wide cracks spaced approximately 3'-0" apart and scattered hairline to 1/16" wide longitudinal cracks (Photos 14-17, 20-23, 29, and 30).
• In Span 13, the westbound right lane near midspan has up to 1/8" wide transverse cracks and up to 3/16" wide longitudinal cracks (Photo 27).
• In Span 14, the westbound lanes have up to 3'-0" long x 1/8" wide longitudinal cracks (Photo 28).

Underside of Deck:
The underside of the exposed deck in Bay G and both overhangs have scattered full-width hairline transverse cracks spaced approximately 6'-0" apart throughout with and without light efflorescence and rust stains (Photos 35, 37, 38, 41, 42, 51, 53, 58, 65, and 76). The cracks at the overhangs typically extend onto the vertical face of the bridge railings (Photo 202).

The underside of deck in Bay G at West Abutment 1, Span 4 at Pier 4, Span 9 at Pier 9 and East Abutment 2 has minor leakage along the longitudinal cold joint (Photo 56).

8382	Stay-in-Place Form	3	97,500.00	sq.ft	93,000.00	4,300.00	200.00	0.00

There are stay-in-place forms (SIP) in all bays except for Bay G throughout the bridge (Photos 34-47). The forms have scattered areas of light to heavy corrosion with isolated areas of 100% section loss, mainly at the interfaces between the adjacent form sections, especially in Bays A and I (Photos 38, 48-50, 54, 55, 57, 59-64, 66-71, 75, and 77).

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4

1000	Corrosion	3	4,500.00	sq.ft	0.00	4,300.00	200.00	0.00

The forms have scattered areas of light to heavy corrosion with isolated areas of 100% section loss, mainly at the interfaces between the adjacent form sections, especially in Bays A and I (Photos 38, 48-50, 54, 55, 57, 59-64, 66-71, 75, and 77).

The SIP forms in Bays A and I adjacent to the scupper downspout connections at scattered locations have moderate corrosion with a few isolated areas of heavy corrosion (Photos 62 and 70).

Span 1:
• Bay I between Interior Diaphragms 3 and 4 – Two (2) areas of light to moderate corrosion with isolated areas of heavy corrosion.

Span 2:
• Bay I between Interior Diaphragms 1 and 2 – Five (5) up to 6" long x up to full-width areas of heavy corrosion (Photo 48).
• Bay I between Interior Diaphragms 2 and 3 – Up to 8" long x 3'-0" wide area of heavy corrosion (Photo 49).
• Bay I between Interior Diaphragms 3 and 4 – Six (6) up to 10" long x up to full-width areas of heavy corrosion (Photo 50).

Span 3:
• Bay I between Interior Diaphragms 1 and 2 – Four (4) up to 6" long x full-width areas of heavy corrosion (Photo 54).
• Bay I between Interior Diaphragms 2 and 3 – Three (3) up to 6" long x full-width areas of heavy corrosion (Photo 55).
• Bay I between Interior Diaphragms 3 and 4 – Four (4) up to 5" long x full-width areas of heavy corrosion with isolated up to 1-1/2" diameter corrosion holes.

Span 4:
• Bay I between Interior Diaphragms 1 and 4 – Scattered ribs with up to 2" long x 3'-0" wide light to moderate corrosion (Photo 57).

Span 5:
• Bay E between Interior Diaphragms 1 and 2 – 5" long x 1'-0" wide area of heavy corrosion (Photo 38).
• Bay H between Interior Diaphragms 2 and 3 – Three (3) up to 3" long x 6" wide areas of heavy corrosion (Photo 38).
• Bay I near Interior Diaphragm 2 – Two (2) up to 6" long x 1'-2" wide areas of heavy corrosion with one (1) of the areas with a 1-1/2" diameter corrosion hole (Photo 59).
• Bay I between Interior Diaphragms 2 and 3 – 3" long x 2'-0" wide area of heavy corrosion (Photo 60).
• Bay I near Interior Diaphragm 4 – Two (2) areas of heavy corrosion with one (1) area with three (3) up to 1" diameter corrosion holes (Photo 61).

Span 7:
• Bay I between Interior Diaphragms 4 and 5 – Two (2) areas of moderate to heavy corrosion (Photo 63).
• Bay I at Interior Diaphragm 6 – One (1) area of moderate to heavy corrosion (Photo 64).

Span 8:
• Bay I at Interior Diaphragm 5 – One (1) area of heavy corrosion.

Span 9:
• Bay I between the field splice and Interior Diaphragm 2 – Up to 3" long x 1'-0" wide area of heavy corrosion (Photo 66).

Span 11:
• Bay A between Interior Diaphragms 1 and 2 – 1'-6" long x 4'-0" wide area of heavy corrosion with 100% section loss (Photo 67).
• Bay I between Interior Diaphragms 2 and 3 – Rib section with up to 3" long x 5" wide areas of heavy corrosion (Photo 68).
• Bay I between Interior Diaphragms 3 and 4 – Three (3) up to 5" long x 3'-0" wide areas of moderate to

heavy corrosion (Photo 69).

Span 12:
• Bay I between Interior Diaphragms 1 and 4 – Scattered up to 3" long x full-width areas of light to moderate corrosion with isolated areas of heavy corrosion (Photo 71).

Span 14:
• Bay F near Interior Diaphragm 3 – 1'-0" long x 3'-0" wide area of heavy corrosion (Photo 75).
• Bay K between Interior Diaphragms 3 and 4 – 6" long x 3'-0" wide area of heavy corrosion near Interior Diaphragm 3, with additional isolated small spots of light corrosion throughout (Photo 77).

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
107	Steel Opn Girder/Beam	3	16,364.00	ft	16,113.00	229.00	22.00	0.00

The superstructure consists of ten (10) weathering steel plate girders, continuous over all piers except Piers 4 and 9. Span 14 is splayed at East Abutment 2, with two (2) rolled section kicker beams that support the flared section of deck along the south side of the bridge (Photos 34-47). There are several locations of concrete overpour on the girder webs and bottom flanges throughout the bridge, as well as scattered pigeon debris along the bottom flanges throughout (Photos 92, 102, and 124). At scattered locations throughout the bridge, the girders have uneven bottom flanges up to 1/8" out-of-plane with a few locations up to 5/8" out-of-plane (Photos 79, 80, 87, 105, 112, 114, and 115). The fascia girders have scattered 7/8" diameter mis-drilled/unused bolt holes near the piers adjacent to the scupper downspouts (Photos 234 and 250). Girders A and J in Spans 4 and 5 and Girders A, B and C in Span 11 do not have the positive camber shown by adjacent girders and same girders in other spans (Photos 111 and 112). There was no notable change in the camber since the previous inspection.

515	Steel Protective Coating	3	247,490.00	sq.ft	242,475.00	5,000.00	0.00	15.00

The weathering steel girders have a normal chocolate to brown surface patina. Isolated areas of the protective coating have areas of yellow to orange discoloration, most common along the top flanges and isolated locations of poorly formed patina (Photos 86, 92-94, 100, and 107). The girders have scattered areas with light flaking patina, heaviest at the north face of Girder A along the lower web and bottom flange (Photos 94, 111, and 117).

Below the deck joints at West Abutment 1, East Abutment 2, Pier 4, and Pier 9, the girder ends are painted for a length of approximately 11'-0". The painted girder ends beyond the 5'-0" end sections have isolated locations of chipped, peeling, and bubbling paint (Photo 234).

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
3420	*Peel/Bub/Crack(Stl Prc*	*3*	*2,515.00*	*sq.ft*	*0.00*	*2,500.00*	*0.00*	*15.00*

Below the deck joints at West Abutment 1, East Abutment 2, Pier 4, and Pier 9, the girder ends are painted for a length of approximately 11'-0". The painted girder ends beyond the 5'-0" end sections have isolated locations of chipped, peeling, and bubbling paint (Photo 234).

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4

3430	*Ox Flm/Txt Adhr(Stl Pr*	*3*	*2,500.00*	*sq.ft*	*0.00*	*2,500.00*	*0.00*	*0.00*

The weathering steel girders have isolated areas of the protective coating with areas of yellow to orange discoloration, most common along the top flanges and isolated locations of poorly formed patina (Photos 86, 92-94, 100, and 107). The girders have scattered areas with light to moderate flaking patina, heaviest at the north face of Girder A along the lower web and bottom flange (Photos 94, 111, and 117).

Span 5:
• North face of Girder A web near Pier 5 – Two (2) up to 2'-0" long x 3'-6" high areas of inconsistent protective coating with yellow to orange discoloration (Photo 86).

Span 7:
• South face of Girder A bottom flange between the east splice and Interior Diaphragm 7 – Areas of inconsistent coating with yellow to orange discoloration (Photos 92 and 94).
• South face of Girder A top flange at the east splice – 9" long x 5" wide area of missing protective coating (Photo 93).

Span 8:
• South face of Girder A web near Pier 7 – Five (5) areas of inconsistent protective coating (Photo 100).

Span 9:
• South face of the Girder G web just west of the splice – 1'-0" long x full-height area of unformed protective coating (Photos 65 and 107).

Span 12:
• Girders E and F – Scattered areas of poorly formed/orange patina along the lower webs and bottom flanges (Photo 45).

Span 13:
• South face of Girder G between Interior Diaphragms 1 and 2 – Scattered areas of inconsistent protective coating along the web and bottom flange.

Span 14:
• Scattered girder splices – Scattered bottom flange splice plates have a loss of the patina coating (Photo 119).

1000	Corrosion	3	216.00	ft	0.00	200.00	16.00	0.00

In all spans, Girder A has scattered areas of flaking patina and patina loss along the north face and the underside of the bottom flange (Photos 78, 85, 94, 109, 111, 116-118, 120, and 121).

Span 1:
• Girder A and Girder B – The underside of the bottom flanges have areas of flaking patina throughout (Photo 78).

Span 4:
• South face of Girder B and north face of Girder C – Full-length areas of light corrosion at the top flange (Photo 82).

Span 5:
• North face of Girder A at the splice – Areas of flaking patina along the lower web and bottom flange around the splice plates with up to 1/16” deep section loss, as well as flaking patina to the bottom flange splice plates and bolts (Photo 85).
• South face of Girder H top flange – Full-length area of light corrosion (Photo 88).

Span 6:
• South face of Girder A at the splice – Up to 3/16” thick pack rust at the bottom flange gap (Photo 89).

Span 7:
• North face of Girder A lower web – Up to 3” high area of flaking patina at the west and east splices (Photo 91). Similarly, the south face of the west bottom flange splice plates have areas of flaking patina.
• Girder A at the east splice – Up to 3/16” thick pack rust at the gap between the bottom flanges (Photos 91 and 92).
• South face of Girders H and I top flanges – Full-length areas of light corrosion (Photo 97).
• South face of Girder J at the east splice – 2’-0” long x up to 2-1/2” high area of flaking patina along the lower web (Photo 99). The bottom flange at the splice gap has up to 1/8” thick pack rust at the south face and up to 1/4” thick pack rust at the north face (Photo 98 and 99).

Span 8:
• South face of Girder B top flange from Pier 8 to the east splice – Light corrosion along the edge.
• Girders H and I in Bay H and south face of Girder I – Full-length areas of light corrosion at the top flange (Photo 104).

Span 9:
• South face of the Girders H and I top flange – Full-length areas of light corrosion along the edge (Photo 108).

Span 10:
• North face of Girder A at the splice – Up to 3” high area of flaking patina along the lower web (Photo 109).

Span 11:
• Girder A between Interior Diaphragms 1 and 2 – 7'-0" long x full-height area of moderate to heavy corrosion on the web that extends on both flanges (Photo 113).

Span 13:
• North face of Girder A at the splice – 4’-0” long x 3” high x up to 1/8" deep area of section loss along the lower web (Photo 116).

Span 14:
• North face of Girder A at the west splice – 4'-4” long x 3" high x up to 1/16” deep area of flaking patina with section loss along the lower web (Photo 118).
• North face of Girder A at the east splice – 6'-0” long x 4” high x 1/16" deep has an area of flaking patina with section loss along the lower web (Photo 120).
• South face of Girder A at the east splice – 5’-6” long x 2-1/2” high area of moderate corrosion along the lower web (Photo 121).

1020	Connection	3	12.00	ft	0.00	6.00	6.00	0.00

Span 4:
• Girder C at the splice – The second bolt from the east in the second row from the south end is not flush with the bottom flange splice plate and has an up to 1/16” gap (Photo 83).

• Girder F at the splice – The second bolt from the west in the second row from the north is not flush with the bottom flange splice plate and has a 1/4” gap (Photo 84).

Span 6:
• Girder H near Pier 5 – The south drip bar has a 7/8” long crack in the east weld. No signs of increasing in length (Photo 90).

Span 7:
• Girder G at the west splice – Three (3) missing bolts in the bottom flange splice plate with stuck alignment pins in place (Photo 95).
• Girder G at the east splice – One (1) missing bolt in the bottom flange splice plates with a stuck alignment pin in place (Photo 96).

Span 8:
• Girder B at the west splice and Girders A, B and C at the east splice – The filler plates are sized approximately 1/8” too small, causing minor distortion at the bottom splice plate (Photos 101 and 102).
• North face of Girder G at the east splice – The top splice plate of the bottom flange at the west end is bent upward, 3-1/2” long (north side) x 4-1/2” long (west side) x up to 3/16” high (Photo 103).

Span 9:
• Girder A at the splice – The furthest northwest bolt is loose and undersized at the bottom flange and the washer is missing (Photo 106).

Span 10:
• Girder C at the splice – The bottom flange splice plate has one (1) backed off bolt with up to 1/8” gap (Photo 110).

Span 14:
• North face of Girder B at the east splice – One (1) bolt nut is backed off and one (1) bolt nut has negative threads at the top flange splice plate (Photo 123).

1900	Distortion	3	20.00	ft	0.00	20.00	0.00	0.00

At scattered locations throughout the bridge, the girders have uneven bottom flanges up to 1/8" out-of-plane with a few locations up to 5/8" out-of-plane (Photos 112, 114, and 115).

Span 2:
• Girder I near Interior Diaphragm 3 – The bottom flange is bent upward, 2’-0” long x 5/8” high (Photo 79).
• Girder J near Interior Diaphragm 3 – The bottom flange is bent upwards, 7” long x 1/8” high (Photo 80).

Span 5:
• Girder G approximately 6’-0” from Pier 5 – The bottom flange is bent upward, 1’-0” long x up to 1/8” high at the north face (Photo 87) and 1’-0” long x up to 1/16” high at the south face.

Span 8:
• South face of Girder J just east of the east splice – The bottom flange has a 2’-4” long x 1/8” out-of-plate area of distortion (Photo 105).

7000	Damage	3	3.00	ft	0.00	3.00	0.00	0.00

Span 3:
• Girder G at Interior Diaphragm 3 – The south edge of the bottom flange has a 3/4” long x 1/4” deep impact gouge (Photo 81).

Span 14:
• South face of Girder B between Interior Diaphragms 3 and 4 – The bottom flange has a 2” long x 1/4” deep impact gouge (Photo 122).

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
205	Re Conc Column	3	39.00	each	36.00	3.00	0.00	0.00

There are three (3) reinforced concrete columns at each pier (Photos 125-149). Column A (north column) is supported on an independent drilled shaft while Columns B and C (center and south columns) are supported by a reinforced concrete pier wall with a stone masonry façade that was part of the original structure (Photos 125-149). The concrete columns have isolated vertical and horizontal hairline cracks (Photos 150-152).

1130	Cracking (RC and Other)	3	3.00	each	0.00	3.00	0.00	0.00

The south face of Column A at Pier 10 near mid-height has a 6'-6" long vertical hairline crack (Photo 150).

The west face of Column A of Pier 12 at the top has three (3) up to 3'-0" long horizontal hairline cracks (Photo 151).

The west face of Column B at Pier 12 has six (6) up to 1/2 the circumference long horizontal hairline cracks (Photo 152).

8368	Graffiti	3	1,190.00	each	790.00	400.00	0.00	0.00

The columns were observed to have areas of graffiti and painted over graffiti throughout, especially at the piers on land (Photos 128, 129, 136, 137, 142, and 148).

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
210	Re Conc Pier Wall	3	587.00	ft	254.00	311.00	22.00	0.00

The reinforced concrete pier walls are part of the original structure and support Columns B and C. The piers were observed to have a stone masonry façade from below the water surface to the top of the pier wall. There are spalls with and without exposed rebar, scattered areas of missing mortar between masonry stones, and random cracked or missing stones (Photos 130, 131, 135, and 153-170). There is vagrant debris at the base of Piers 6 and 7 but no signs of vagrant activity (Photo 157). Adjacent to the east face of Pier 10 and both faces of Piers 11-13, there is construction debris that is being stored along the faces of the pier walls (Photos 143-149). The majority of the pier walls are below the water line, information from the 2024 Underwater Inspection has been included below. 2024 UNDERWATER INSPECTION REPORT NOTES: For the Underwater Inspection, the Collision Wall for Bridge No. 020001 and Bridge No. 020021 were inspected and reported as a single structure. Piers #4 through #9 were included in the underwater inspection from the top of the stone masonry facade (bottom of the pier cope) to the channel bottom. The stone masonry has scattered areas of missing mortar, up to 15% with penetrations up to 12" deep between the stones, cracked stones and missing stones. The reinforced concrete pier wall below the stone masonry at Piers 4 – 7 have abrasion, areas of poor consolidation / voids / spalls, and cracking. The following portion of this element was not part of the 2024 Underwater Inspection, the following notes are from the 7/21/23 Routine Inspection: The reinforced concrete pier walls are part of the original structure and support columns B and C. The piers were observed to have a stone masonry façade from below the water surface to the top of the pier wall. There are scattered areas of missing mortar between masonry stones and random cracked stones. Note that there is vagrant debris at the base of Pier #6 and #7. Refer to the 2024 Underwater Inspection Report for additional comments.

1080	Delamination/Spall/Patched Are	3	40.00	ft	0.00	20.00	20.00	0.00

Pier 6:
• There are up to 3’-0" long x 6” high x 6” deep intermittent voids along the interface of the stone facade and the concrete pier wall.
• The east face near the south end (entrance to original pier interior) has a 2'-0" long x 2’-6" high missing stone (Photo 135).

Pier 7:
• The west face at the south end (entrance to original pier interior) has a 3'-6" long x 5'-0" high area of missing stones (Photo 156).
• The top at the southeast corner of the step has a 7” wide x 3” long (top face) x 2” high x 1-1/4” deep spall (Photo 157).
• The interior face of the north, west and east walls has up to 4” deep spalling with exposed rebar (Photo 158).

Pier 10:
• The west face at the construction joint just south of Column C has a 4” long x 1’-8” high x 3-1/2” deep spall (Photo 163).
• The east face of the step near the south end has a 1’-0” long x 1’-0” high x 2” deep spall (Photo 166).
• The east face of the step between Columns B and C has a 1’-1” long x 5” high x 1/2” deep corner spall (Photo 167).

Pier 12:
• The north face at the top stone has a 1’-1” wide x 6” high x 2” deep spall (Photo 169).

Pier 13:
• The east face just south of Column C has an 8'-0" long x up to 2’-0" high x up to 3” deep area of spalling with exposed rebar at the decorative detail of the original bridge (Photo 170).

2024 UNDERWATER INSPECTION REPORT NOTES:
Pier 5:
- Reinforced concrete collision wall, South Nose near channel bottom has an area of poor consolidation full width x 3' high x up to 2" deep (See Photo No. 6).

Pier 6:
- Reinforced concrete collision wall below the masonry has random areas of poor consolidation up to 16" long x 12" high x 1" deep.
- Concrete / masonry interface has voids up to 3' long x 6" high x 6" deep.
- Reinforced concrete collision wall below the masonry, Northeast Corner near channel bottom has an area of poor consolidation 3'-6" long down the East Face x 4' long down the North Face x 16" high x 2" deep (See Photo No. 13).

Pier 7:
- Reinforced concrete collision wall has multiple areas of poor consolidation / spalls up to 16'-6" high x 2' wide x 5" deep with rust stains (See Photo No. 16).

The following portion of this element was not part of the 2024 Underwater Inspection, the following notes are from the 7/21/23 Routine Inspection:

At Pier 6 there are intermittent voids up to 3’-0" long x 6” high x 6” deep along the interface of the stone facade and the concrete pier wall. There is a missing stone 2'-0" long x 2-1/2" high on the East Face.

At Pier 7 on the West Face, there is a missing stone 3'-6" long x 5'-0" high.

At Pier 10, there is a spall 1'-0" high x 1’-0" wide x 2” deep on top of the southwest corner of the pier wall.

1090	Exposed Rebar	3	2.00	ft	0.00	2.00	0.00	0.00

Refer to Defect 1080 for comments.

1120	Efflorescence/Rust Staining	3	1.00	ft	0.00	1.00	0.00	0.00

Refer to Defect 1130 for comments.

2024 UNDERWATER INSPECTION REPORT NOTES:
At Pier 13 there are two full height x up to 1/16” wide cracks with moderate efflorescence, one on the West Face and one on the East Face.

1130	Cracking (RC and Other)	3	179.00	ft	0.00	179.00	0.00	0.00

The pier walls have scattered full-height vertical hairline cracks with and without efflorescence and rust staining that extend onto the top face. Wider and more extensive cracking is present as follows:

Pier 4:
• Both faces of the pier wall south of Column C have areas of missing mortar along the vertical joints (Photos 130 and 131).
• The west face of the pier wall south of Column C has up to 1/8” wide vertical cracks in the stones (Photo 130).

Pier 6:
• The west face of the pier wall at the fourth stone from the north end in the second row from the top has a full-height x 1/16” wide vertical crack (Photo 153).
• The east face at Column C at the top stone has a full-height vertical hairline crack (Photo 154).
• The east face just north of the pedestrian bridge at the third and fourth stone from the top have full-height x up to 1/2” wide vertical cracks and the first and second stones from the top have full-height x up to 1/4” wide vertical cracks (Photo 155).

Pier 7:
• The east face at the north end of the pedestrian bridge at the top two (2) stones have full-height x up to 1/2” wide vertical cracks (Photo 159).

Pier 9:
• The west face south of Column C at the second stone from the top has a full-height x 1/8” wide vertical crack and adjacent areas of missing mortar (Photo 160).
• The top face between Columns B and C has widespread areas of hairline map cracking throughout (Photo 161).
• The north face at the second row of stones from the top has a full-height x up to 1/4” wide vertical crack (Photo 162).

Pier 10:
• Between Columns B and C, there are three (3) full-width x 1/8” wide transverse cracks across the top of the pier wall that extend down the vertical faces of the wall (Photo 164).
• The top of the north face near the west end has a 3’-0” long x 1/8” wide vertical crack with 1/4” misalignment between sections (Photo 165).

Pier 11:
• The east face at the south half has a few full-height x up to 1/16” wide vertical cracks with and without efflorescence (Photo 168).

Pier 12:
• The east face between Columns B and C has a full-height x 1/16” wide vertical crack.

Pier 13:
• The west face has one (1) full-height x up to 1/16” wide vertical crack with moderate efflorescence.
• The east face has one (1) full-height x up to 3/16” wide vertical crack with moderate efflorescence (Photo 170).

2024 UNDERWATER INSPECTION REPORT NOTES:
Pier 4:
-East Face, fourth course has a cracked stone 1/4" wide that extends through the reinforced concrete collision wall to channel bottom.

Pier 5:
-Masonry facade, West Face near centerline, 1st, 3rd and 4th courses have vertical cracks up to 1/4" wide that extends into the concrete collision wall and is open up to 1/2" wide at channel bottom.
-Masonry facade, East Face, 20' from the Southeast Corner, 6th course has a vertical crack up to 3/16" wide that extends into the concrete collision wall to channel bottom.

Pier 7:

-Masonry facade, East and West Faces at centerline have a vertical cracks full height of the masonry facade x up to 1/2" wide with chipped stones up to 8'-6" high x 5" wide x 3" deep. The crack in the East Face continues through the reinforced concrete collision wall below the masonry facade and has edge spalls up to 14" wide x 2' high x 2-1/2" deep with soft concrete.

1190	Abrasion(PSC/RC)	3	10.00	ft	0.00	8.00	2.00	0.00

2024 UNDERWATER INSPECTION REPORT NOTES:
Piers 6 & 7:
- Reinforced concrete collision wall has abrasion up to 2" deep.

4000	Settlement	3	1.00	ft	0.00	1.00	0.00	0.00

2024 UNDERWATER INSPECTION REPORT NOTES:
Piers 6 & 7:
Both the west and east faces of the pier, there are vertical cracks open to 1/2" wide that extend from the top of the stone masonry facade down to the channel bottom and missing stones that may indicate slight settlement of the pier.

6000	Scour	3	100.00	ft	0.00	100.00	0.00	0.00

2024 UNDERWATER INSPECTION REPORT NOTES:
Piers 6:
- West Face near centerline has scour up to 2.4' deep.
- South Face has an area of scour up to 4.3' deep that extends around the East Face.
- East Face near centerline and the north end has areas of scour up to 2.8' deep.

Pier 7:
- North Face has scour up to 3.0' deep however soundings in this area show aggradation up to 0.9' high as compared to the 2017 soundings.
- West Face has scour up to 3.5' deep however soundings in this area show aggradation up to 1.8' high as compared to the 2017 soundings.
- East Face at 5' - 10' off the pier has scour up to 5.0' deep however soundings in this area show aggradation up to 2.7' high as compared to the 2017 soundings.

8368	Graffiti	3	3,240.00	ft	0.00	3,240.00	0.00	0.00

The pier walls that are on land were observed to have areas of heavy graffiti throughout (Photos 129, 136, 137, 142, 145, 148, 157, and 158).

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
215	Re Conc Abutment	3	171.00	ft	53.00	115.00	3.00	0.00

West Abutment 1 is shared between Bridge No. 020001 and adjacent Bridge No. 070001 to the north. East Abutment 2 is shared between Bridge No. 020001 and adjacent Bridge No. 020021 to the south. The abutments have random delaminated areas, spalls, efflorescence and active leakage, and hairline cracks with and without efflorescence (Photos 171-177). There are scattered areas of light to moderate bird debris, bird nests, and construction debris on both abutment bridge seats (Photos 173 and 275). RIDOT was actively working on cleaning the West Abutment 1 bridge seat at the time of inspection.

1080	Delamination/Spall/Patched Are	3	2.00	ft	0.00	2.00	0.00	0.00

The north face of East Abutment 2 at the top has a 11” wide x 2’-6” high x 7” deep spall with an adjacent 1’-0” wide x full-height delaminated area (Photo 175).

1120	Efflorescence/Rust Staining	3	56.00	ft	0.00	53.00	3.00	0.00

The East Abutment 2 breastwall below Bay J to the south end has efflorescence and active leakage emanating from the horizontal construction joint near the base (Photo 177).

Refer to Defect 1130 for additional comments.

1130	Cracking (RC and Other)	3	60.00	ft	0.00	60.00	0.00	0.00

The abutment breastwalls have random areas of hairline map cracking (Photos 171 and 172).

West Abutment 1:
• The breastwall has scattered hairline vertical and diagonal cracks, most of which have been sealed (Photo 171).
• The lower portion of the breastwall below Bays H and I has a 20'-0" long hairline horizontal crack with leakage staining and heavy efflorescence (Photo 174).

East Abutment 2:
• The north face of the breastwall has a 9'-0" high x 1/4" wide vertical crack below a spall near the bridge seat (Photo 175).
• The East Abutment 2 breastwall below Bay D at mid-height has a 3'-0" long hairline horizontal crack with light efflorescence (Photo 176) and three (3) 5'-0" long sealed hairline diagonal cracks with efflorescence near the base.
• Below Girder J in Bay I, the breastwall near the base has a 2'-6" long hairline diagonal crack with efflorescence and rust staining (Photo 177).

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
220	Re Conc Pile Cap/Ftg	3	218.00	ft	1.00	215.00	2.00	0.00

Pier 10 has an area of erosion at the northwest corner of the wall with an exposed portion of the pile cap (Photos 142 and 178). 2024 UNDERWATER INSPECTION REPORT NOTES: The pier walls are founded on reinforced concrete footings with timber piles. The sloped concrete footings steps out 18" to 2' from the pier face then slopes downward at a 45° angle. Piers 4, 5, 8 & 9 have exposed footings up to 8' high with abrasion, poor consolidation / voids / spalls, cracking. Pier 4: East Face of the footing is exposed 20' long at the north end, 15' long at the south end and up to 2' high (maximum at the southeast corner). South Face of the footing is exposed 10' long at the east end (previously exposed up to 2' vertically at the southeast shoulder and extends along the full-length of the east face of the pier and terminates at the northeast shoulder). Pier 5: South Face of the footing is exposed 15' long x up to 10" high (maximum at the South Nose; previously exposed up to 6" high extending 4' long down the West Face). Pier 8: North Face of the footing is exposed full length x up to 4.5' high (no change) extending down the West Face 12' long and the East Face 9' long (maximum at the Northeast Corner). The East Face of the footing is intermittently exposed full-length x up to 3' high. Pier 9: West Face of the footing is exposed from 6' south of the Northwest Corner to 18' north of the Southwest Corner up to 4.5' (maximum near centerline; no change).

1130	Cracking (RC and Other)	3	1.00	ft	0.00	1.00	0.00	0.00

2024 UNDERWATER INSPECTION REPORT NOTES:
Pier 8:
- West and East Faces, 23' from the South Nose, footing has vertical cracks up to 1/4" wide with edge spalls up to 6" high x 2" wide x 1" deep.

1190	Abrasion(PSC/RC)	3	62.00	ft	0.00	60.00	2.00	0.00

2024 UNDERWATER INSPECTION REPORT NOTES:
The pile caps exhibit abrasion up to 1/2" deep on the exposed surfaces.

At Pier 8, the sloped concrete step/pile cap exhibits an area of section loss 2'-0" long x 8" high x 5" deep on the East Face of the pier, located 5' from the southeast corner.

6000	Scour	3	154.00	ft	0.00	154.00	0.00	0.00

The northwest corner of Pier 10 has a 23'-0" long section of exposed portion of the pile cap (Photos 142 and 178).

2024 UNDERWATER INSPECTION REPORT NOTES:
Pier 4:
East Face of the footing is exposed 20' long at the north end, 15' long at the south end and up to 2' high (maximum at the southeast corner). South Face of the footing is exposed 10' long at the east end (previously exposed up to 2' vertically at the southeast shoulder and extends along the full-length of the east face of the pier and terminates at the northeast shoulder).

Pier 5:
South Face of the footing is exposed 15' long x up to 10" high (maximum at the South Nose; previously exposed up to 6" high extending 4' long down the West Face).

Pier 8:
North Face of the footing is exposed full length x up to 4.5' high (no change) extending down the West Face 12' long and the East Face 9' long (maximum at the Northeast Corner). The East Face of the footing is intermittently exposed full-length x up to 3' high.

Pier 9:
West Face of the footing is exposed from 6' south of the Northwest Corner to 18' north of the Southwest Corner up to 4.5' (maximum near centerline; no change).

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
225	**Steel Pile**	**3**	**6.00**	**each**	**5.00**	**0.00**	**1.00**	**0.00**

2024 UNDERWATER INSPECTION REPORT NOTES: There is a steel encased reinforced concrete caisson pile at the north (upstream) ends of the pier. The caisson piles have fiberglass jackets in place that extends up to 10' down from the underside of the concrete cap section. The caisson piles, steel below the jacket has minor corrosion with light pitting up to 1/16" deep.

1000	Corrosion	3	1.00	each	0.00	0.00	1.00	0.00

2024 UNDERWATER INSPECTION REPORT NOTES:
- The caisson piles, steel below the jacket has minor corrosion with light pitting up to 1/16" deep.

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
234	**Re Conc Pier Cap**	**3**	**920.00**	**ft**	**705.00**	**214.00**	**1.00**	**0.00**

There are reinforced concrete pier caps at each pier that have a few scattered minor spalls, scattered hairline vertical cracks, typically adjacent to the columns, and areas of light rust stains (Photos 125-149 and 179-187). Some of the piers have pigeon debris on the beam seats and scattered areas of construction debris (Photos 244, 246, and 262). At Pier 4, there is active leakage due to tears in the joint seal above (Photo 131).

1080	Delamination/Spall/Patched Are3		5.00	ft	0.00	4.00	1.00	0.00

Pier 1:
• The west face at the bottom edge below Bay C has a 6” long x 3” high x 1/2” deep spall (Photo 179).

Pier 6:
• Girder C pedestal at the southwest corner of the bearing masonry plate has a 2-1/2” diameter x 1/2” deep spall (Photo 181).
• The east face below Girder C near the top has a 1-1/2” diameter x 3” deep spall (Photo 182).
• The underside of the cap has scatted exposed rebar chairs.

Pier 9:
• The underside of the Pier 9 cap between Columns B and C has a full-width x 3/4” long x 3/4” deep area of honeycombing (Photo 184).

Pier 13:
• The east face below Girder D along the bottom edge has a 6” long x 4” high x 3” wide (underside) x 3/4” deep spall (Photo 187).

1120	Efflorescence/Rust Staining	3	10.00	ft	0.00	10.00	0.00	0.00

The pier caps have areas of light rust staining (Photos 130, 131, 135, 137, 139, 143, and 146).

Refer to Defect 1130 for additional comments.

1130	Cracking (RC and Other)	3	200.00	ft	0.00	200.00	0.00	0.00

The pier caps have scattered up to full-height hairline vertical and diagonal cracks with and without efflorescence and rust stains, typically adjacent to the columns. Some of the vertical cracks continue across the top and underside of the pier caps (Photos 180, 183, 185, and 186).

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
300	Strip Seal Exp Joint	3	68.00	ft	0.00	23.00	45.00	0.00

The roadway above West Abutment 1 has a strip seal expansion joint. The joint has scattered torn, depressed, and missing sealant and light to moderate accumulation of debris (Photos 188-192).

2340	Seal Cracking	3	44.00	ft	0.00	0.00	44.00	0.00

The joint seal has areas of torn, depressed and missing sealant (Photos 188-190, and 192).

2350	Debris Impaction	3	23.00	ft	0.00	23.00	0.00	0.00

The joint has a light to moderate accumulation of debris (Photos 188-190, and 192).

2370	Metal Deterioration or Damage	3	1.00	ft	0.00	0.00	1.00	0.00

The eastbound center lane west joint armor has a full-width crack in the left wheel line (Photo 191).

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
301	Pourable Joint Seal	3	161.00	ft	125.00	0.00	36.00	0.00

The roadway above West Abutment 1 and East Abutment 2 has pourable joint seals along the interface with the approach slabs. The pourable joint seals have spalls and cracking in the headers, moderate to heavy accumulation of debris, isolated seal damage, and missing sealant (Photos 188-190, and 192-196). The West Abutment 1 eastbound joint headers were under repair at the time of inspection (Photo 190).

2330	Seal Damage	3	2.00	ft	0.00	0.00	2.00	0.00

The West Abutment 1 pourable joint has up to 1'-0" long and up to 3'-0" long sections of missing sealant in the eastbound and westbound lanes, respectively (Photos 188, 189, and 192). The East Abutment 2 pourable joint in the westbound center lane has a 3'-0" long area of seal damage adjacent to the spall in the left wheel line (Photos 193 and 194).

2350	Debris Impaction	3	25.00	ft	0.00	0.00	25.00	0.00

The East Abutment 2 joint has a moderate to heavy accumulation of debris (Photos 193-196).

2360	Adjacent Deck or Header	3	9.00	ft	0.00	0.00	9.00	0.00

The West Abutment 1 and East Abutment 2 pourable joint headers have up to 1" wide transverse cracks along the joints with minor spalls (Photos 188, 189, and 192-196).

West Abutment 1 Joint:
• Westbound left lane – 2'-8" long x 7" wide x 3" deep spall in the left wheel line (Photo 189).
• Westbound center lane – 3'-0" long x 10" wide x 3" deep spall in the left wheel line (Photo 189).
• Eastbound left lane – 4'-0" long x 6" wide x up to 3" deep spall (Photo 192).
• Eastbound center lane – Full-width x 1" wide sawcut groove from the associated joint repairs in the left wheel line (Photo 192).

East Abutment 2 Joint:
• Westbound center lane – Up to 2'-0" long x 8" wide x 3" deep spalls in both wheel lines with minor settlement throughout the remaining portions (Photos 193 and 194).
• Widespread up to 1-1/2" wide x 1" deep spalling along the seal (Photo 194).

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
303	Assem Jnt With Seal	3	220.00	ft	0.00	176.00	2.00	42.00

The roadway above Piers 4, 9, and East Abutment 2 has modular expansion joints. The modular expansion joints have areas of minor plow damage, areas of torn, missing and depressed sealant, and light to moderate accumulation of sand and debris with isolated areas of heavy accumulation (Photos 193-201). The expansion joints all have thumping under live load.

2340	Seal Cracking	3	42.00	ft	0.00	0.00	0.00	42.00

The Pier 4 joint has areas of torn and missing sealant in the eastbound right and center lanes (Photo 198).

The Pier 9 joint has areas of moderate depressions in the sealant and isolated tears in the eastbound roadway (Photo 201).

The East Abutment 2 modular joint has areas or torn, missing and depressed sealant throughout (Photo 193-196).

2350	Debris Impaction	3	171.00	ft	0.00	171.00	0.00	0.00

The modular joints have light to moderate accumulation of debris throughout, with heavy accumulation at the shoulders (Photos 193-201).

2360	Adjacent Deck or Header	3	2.00	ft	0.00	0.00	2.00	0.00

The Pier 4 joint east header in the eastbound right lane has a 1'-8" long x 3-1/2" wide x up to 1" deep spall (Photo 198).

2370	Metal Deterioration or Damage	3	5.00	ft	0.00	5.00	0.00	0.00

The Pier 4 joint has an area of minor plow damage to the steel armor in the eastbound right lane and right shoulder (Photo 198).

The Pier 9 joint has areas of minor plow damage to the steel armor in the eastbound lanes (Photo 201).

The East Abutment 2 joint has area of minor plow damage to the steel armor in the eastbound center and left travel lanes (Photos 196).

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
321	Re Conc Approach Slab	3	2,212.00	sq.ft	1,052.00	1,160.00	0.00	0.00

There are reinforced concrete approach slabs at each end of the bridge. The west approach slab is concealed from view by a bituminous wearing surface (Photos 18 and 19). The east approach slab is exposed (Photos 13, 24, and 206).

510	Wearing Surfaces	3	782.00	sq.ft	782.00	0.00	0.00	0.00

The west approach wearing surface has been repaved since the previous Special Inspection and has no significant deficiencies at the time of this inspection (Photos 18 and 19).

1130	Cracking (RC and Other)	3	100.00	sq.ft	0.00	100.00	0.00	0.00

The east approach slab has scattered 1/16” wide longitudinal cracks in the off-ramp lane and in the westbound left lane (Photos 24 and 206).

1190	Abrasion(PSC/RC)	3	1,060.00	sq.ft	0.00	1,060.00	0.00	0.00

The east approach slab has areas of minor to moderate wear and a few minor gouges and scrapes (Photos 13, 24, and 206).

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
331	Re Conc Bridge Railing	3	3,318.00	ft	2,103.00	1,215.00	0.00	0.00

There are reinforced concrete bridge railings along both sides of the bridge that extend beyond the approaches. The railings have scattered hairline vertical cracks, some with light efflorescence, a few isolated impact scrapes and scattered minor gouges (Photos 202-205, 300, and 307). There is a temporary construction fence attached throughout the full-length of the north railing due to the ongoing demolition of the adjacent Washington Bridge North structure (Photos 13, 16, 17, 19, 20, 22, and 23). The southwest approach rail is comprised of moveable jersey-style barriers. The barriers are misaligned and not secured to each other creating up to 2’-4” long gaps between sections. The previously noted protruding barrier has been realigned since the previous Special Inspection.

1120	Efflorescence/Rust Staining	3	200.00	ft	0.00	200.00	0.00	0.00

Refer to Defect 1130 for comments.

1130	Cracking (RC and Other)	3	1,000.00	ft	0.00	1,000.00	0.00	0.00

The exterior faces of the bridge railings have up to full-height hairline vertical through cracks, some with efflorescence, spaced approximately 3’-0” apart (Photo 202).

South Bridge Railing:
• Span 5, sixth light standard from the west end – 8” long hairline crack extending from the northwest anchor bolt (Photo 300).
• Span 9, sixth light standard from the west end – 9” long hairline crack extending from the northwest anchor bolt (Photo 307).

7000	Damage	3	15.00	ft	0.00	15.00	0.00	0.00

The interior faces of the bridge railings have scattered minor impact scrapes throughout (Photo 203).

South Bridge Railing:
• Span 11, at the east third point – Six (6) up to 2'-0" long x up to 3" high x up to 3/8" deep impact gouges (Photo 204).
• Span 13, near Pier 13 – Several up to 2'-0" long x 1" high x 1/8" deep impact gouges (Photo 205).

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
8060	Scupper	3	26.00	each	12.00	1.00	4.00	9.00

The scupper grates consist of a three (3) piece slotted grate with two (2) connection bolts per grate section. Most of the original slotted grate sections have been replaced with a flat steel plate with large drain hole slots cut out that were tack welded to the perimeter of the scupper frame. The replacement sections were installed after the original grate sections broke and were unable to be replaced. Some of the replacement sections are loose and there are several cracked tack welds (Photos 207, 208, 210, 214-216, 218, 220, 222, 223, and 225). Refer to "020001-2024-11-01-Element 8060-Table 1.pdf" for specific defects and locations. Due to the changed lane configuration on the bridge expected to be in place for a few years, a significant amount of traffic will be traveling directly over the scupper grates potentially causing more to break, become loose and shift out of place. Green recommends regular inspections and maintenance of the grates to ensure they remain secure while the temporary traffic configuration is in place. There is a clogged catch basin at the base of East Abutment 2 that has caused standing water along the base of the breastwall extending up to the full-length of the abutment (Photo 177). The downspout at West Abutment 1 below Bay I has evidence of a past clogged bell reducer due to leakage staining along the pipe. On the west face of Pier 3, the north downspout has two (2) severed anchor rods located at the mid-height and lower connections (Photo 227 and 228). On the east face of Pier 10, the downspout has disconnected anchor rod at the upper connection (Photo 229).

2210	Movement	3	4.00	each	0.00	0.00	4.00	0.00

Refer to "020001-2024-11-01-Element 8060-Table 1.pdf" for specific defects and locations.

7000	Damage	3	10.00	each	0.00	1.00	0.00	9.00

Refer to "020001-2024-11-01-Element 8060-Table 1.pdf" for specific defects and locations.

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
8107	Steel Opn Girder/Beam ENDS	3	310.00	ft	300.00	10.00	0.00	0.00

The girder ends are painted below the deck joints at the abutments and at Piers 4 and 9. The girder ends are in overall good condition with isolated locations of chipped and peeling paint and light corrosion (Photos 230-237). There are also isolated locations of concrete overpour. The girder ends have 7/8" diameter mis-drilled/unused bolt holes at several locations adjacent to the downspouts (Photos 234 and 250).

515	Steel Protective Coating	3	3,710.00	sq.ft	3,660.00	40.00	0.00	10.00

The painted girder ends have isolated areas of chipped and peeling paint with light to moderate corrosion (Photos 230-237).

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4

3420	*Peel/Bub/Crack(Stl Prc*	*3*	*50.00*	*sq.ft*	*0.00*	*40.00*	*0.00*	*10.00*

The painted girder ends have isolated areas of chipped and peeling paint with light to moderate corrosion (Photos 230-237).

In Span 10, the west face of the bearing stiffeners are not painted at Girders G and H over Pier 9 (Photos 282-285).

Refer to Defect 1000 for additional deficiencies and locations.

1000	Corrosion	3	10.00	ft	0.00	10.00	0.00	0.00

West Abutment 1:
• The north face of Girder A has a 1’-6" long x 9" wide (top and bottom faces of bottom flange) x 4-1/2” high area of peeling and bubbling paint with light corrosion along the lower web and north half of the bottom flange (Photo 230).

Span 4 at Pier 4:
• The north face of Girder H has peeling paint with light corrosion on the bottom flange and lower web (Photo 232).
• The bottom flange of Girders I and J have peeling paint with light to moderate corrosion over the bearing (Photo 233).

Span 5 at Pier 4:
• The north face of Girder A has a 2’-0” long x full-width area of peeling paint with light corrosion at the bottom flange that extends up to 3” high along the lower web over the bearing (Photo 234).
• The south face of Girder I has an area of light to moderate corrosion on the bottom flange over the bearing (Photo 235).
• The south face of Girder J has an area of light to moderate corrosion on the bottom flange over the bearing and the north face has a few scattered areas of peeling paint with light to moderate corrosion (Photo 236).

At Pier 9:
• The south face of Girder J in Spans 9 and 10 has moderate corrosion on the bottom flange that extends onto the bearing stiffeners (Photo 237).

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
8213	**R/C Return Wall**	**3**	**70.00**	**ft**	**65.00**	**5.00**	**0.00**	**0.00**

There is a reinforced concrete return wall at the northeast corner of the bridge that has an architectural finish with hairline vertical cracks and minor vegetation growth (Photos 238 and 239).

1130	Cracking (RC and Other)	3	5.00	ft	0.00	5.00	0.00	0.00

The northeast return wall has up to 10’-0” long hairline vertical cracks that extend from the weep holes in the architectural finish (Photo 239).

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
8218	**Backwall, All Types**	**3**	**171.00**	**ft**	**160.00**	**9.00**	**2.00**	**0.00**

There are reinforced concrete backwalls at both abutments. The backwalls have isolated spalls and scattered hairline vertical cracks with and without efflorescence (Photos 240-242).

1080	Delamination/Spall/Patched Are	3	2.00	ft	0.00	0.00	2.00	0.00

The north end of the East Abutment 2 backwall behind Girder A has a 2’-0” long x 7” high x 1’-2” deep spall at the top (Photo 241).

1120	Efflorescence/Rust Staining	3	1.00	ft	0.00	1.00	0.00	0.00

Refer to Defect 1130 for comments.

1130	Cracking (RC and Other)	3	8.00	ft	0.00	8.00	0.00	0.00

The abutment backwalls have scattered full-height hairline vertical cracks with and without efflorescence (Photos 240 and 242).

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
8316	**Isolation Bearing**	**3**	**172.00**	**each**	**21.00**	**139.00**	**12.00**	**0.00**

There are isolation bearings at all piers and both abutments. Several of the bearings have light to moderate corrosion, bent anchor bolts, backed off bolt nuts and concrete debris/over-pour from construction (Photos 243-274). There are isolated bearings with gaps between the girder bottom flanges and the sole plates (Photos 181 and 250). These gaps are as-built conditions and no additional signs of distress were noted (Photos 255, 259, 260, 264, and 270). There are widespread locations of misalignment and girder bottom flanges that are not centered on the sole plate, which are a result of construction (Photos 253 and 254). Refer to attached file "020001-2024-11-01-Element 8316-Table-2.pdf". for specific deficiencies. The bearing defect table only include defects and not include as-built offsets as these cannot change between inspection cycles due to the welded connections between the sole plate and bottom flange and the end diaphragm and deck connections between the girders. There are isolated bearings with gaps measuring up to 1/4" between the girder bottom flanges and sole plates. These gaps are as-built conditions and no additional signs of distress were noted (Photos 255, 259, 260, 264, and 270). For specific locations of these gaps, see attachment "020001-2024-11-01-Element 8316-Table-2.pdf".

515	Steel Protective Coating	3	516.00	sq.ft	435.00	66.00	0.00	15.00

The isolation bearings have a galvanized coating on the masonry and sole plates. The protective coating at several bearings has areas of failed coating with light to moderate corrosion (Photos 252, 261, 263, 264, 267, 269, and 274).

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
3420	*Peel/Bub/Crack(Stl Prc*	*3*	*81.00*	*sq.ft*	*0.00*	*66.00*	*0.00*	*15.00*

The galvanized protective coating at several bearings has areas of failed coating with light to moderate corrosion (Photos 252, 261, 263, 264, 267, 269, 273, and 274).

1000	Corrosion	3	42.00	each	0.00	42.00	0.00	0.00

There are widespread areas of light to moderate surface corrosion on the bearing assemblies throughout the bridge, most prevalent below the deck joints at both abutments and Piers 4 and 9 (Photos 252, 261, 263, 264, 267, 269, 273, and 274).

At East Abutment 2, the Girder H bearing has heavy corrosion to the masonry plate (Photo 273). Additionally, the Kicker Beam L bearing has moderate to heavy surface corrosion on the masonry plate (Photo 274).

1020	Connection	3	57.00	each	0.00	45.00	12.00	0.00

The bearing connection hardware consists of anchor rods, nuts, bolts, and washers. Numerous bearing fasteners are either loose, tilted, backed off, or missing (Photos 243-274).

Refer to attached file "020001-2024-11-01-Element 8316-Table-2.pdf" for specific deficiencies.

2220	Alignment	3	10.00	each	0.00	10.00	0.00	0.00

There are widespread locations where the girder bottom flanges are not centered on the sole plate, which are a result of construction (Photos 253 and 254).

2230	Bulging, Splitting or Tearing	3	2.00	each	0.00	2.00	0.00	0.00

Isolated bearings throughout the structure are compressed differentially, up to 3/8", which is within the normal expected range (Photos 252-255).

Refer to attached file "020001-2024-11-01-Element 8316-Table-2.pdf" for specific deficiencies.

2240	Loss of Bearing Area	3	40.00	each	0.00	40.00	0.00	0.00

Most of the bearings have up to 5/8" high (Girder H bearing at Pier 3) gaps between the masonry plate and the top surface of the concrete pedestal along the north and south edges of the masonry plate. These gaps are the result of the top surface of the concrete pedestal having an uneven finish at these locations. The unsupported area typically does not extend within the anchor bolts (Photos 181 and 250).

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
8370	**Steel Diaphragms**	**3**	**805.00**	**each**	**795.00**	**10.00**	**0.00**	**0.00**

The interior diaphragms are numbered from west to east within each span. The interior and end diaphragms have scattered areas of yellow to orange patina with scattered locations of concrete debris/over-pour from construction and isolated locations of connection deficiencies (Photos 276-280 and 286). The end diaphragms below the deck joints at the abutments and at Piers 4 and 9 are painted (Photos 275, and 281-285).

515	Steel Protective Coating	3	24,200.00	sq.ft	23,695.00	500.00	0.00	5.00

The interior diaphragms and most end diaphragms are protected by a weathering steel patina. The weathering steel diaphragms have a normal surface patina with some scattered areas of yellow to orange discoloration (Photos 277).

The end diaphragms below the deck joints at both abutments and at Piers 4 and 9 and a few interior diaphragms near East Abutment 2 are painted. The connection bolts at West Abutment 1, Span 5 at Pier 4, and Span 9 at Pier 9 in all bays are not painted (Photo 231, 235, 236, 281-285).

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
3420	*Peel/Bub/Crack(Stl Prc*	*3*	*255.00*	*sq.ft*	*0.00*	*250.00*	*0.00*	*5.00*

The end diaphragms below the deck joints at both abutment and at Piers 4 and 9 have isolated areas of peeling paint with light corrosion (Photo 286).

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
3430	*Ox Flm/Txt Adhr(Stl Pr*	*3*	*250.00*	*sq.ft*	*0.00*	*250.00*	*0.00*	*0.00*

The weathering steel diaphragms have a normal surface patina with some scattered areas of yellow to orange discoloration (Photo 277).

In Span 5, Bay A, Intermediate Diaphragms 2, 3, and 4 have minor loss of patina on the bottom angle (Photo 277).

1000	Corrosion	3	6.00	each	0.00	6.00	0.00	0.00

At West Abutment 1, the end diaphragm in Bay G has small areas of peeling paint with light corrosion on the east edge of the top and bottom flange (Photo 275).

In Span 4 at Pier 4, the end diaphragm in Bay G has an area of peeling paint with light corrosion along the center of the top flange and along the bottom flange at the connection to Girder H (Photo 56).

In Spans 9 and 10 at Pier 9, the end diaphragm in Bay G has an up to 1'-0" long areas of peeling paint with light corrosion at the top flange due to leakage from the cold joint in the deck (Photo 281).

In Span 10 at Pier 9, the west face of the of the end diaphragm connection plates and bolts in Bay G are not painted (Photos 282-285).

In Span 14 in Bay H, Interior Diaphragm 7 has minor peeling paint with light corrosion (Photo 286).

1020	Connection	3	4.00	each	0.00	4.00	0.00	0.00

Throughout the bridge, in Bay G there are filler plates installed at the connections to the girders. In several spans, the interior diaphragms in Bay G have plate washers overlapping adjacent washers and slightly bent washers (Photo 276).

In Bay G at Pier 5, the end diaphragm connection to Girder G has two (2) bolts with up to 1/4” gaps and one (1) bolt with negative thread at the bottom row (Photo 278).

In Span 6, Interior Diaphragm 6 on the south face of the Girder G connection, the top bolt of the top connection plate has a crack on the vertical face of the bolt head that measures the full-thickness of the bolt head (Photo 279). The crack has not increased in size since the previous inspection.

In Span 7, Interior Diaphragm 4 at the south face of Girder F connection has the second bolt from the bottom loose and underthreaded bolt nut (Photo 280).

At Pier 9 in Span 10, the bolts at the end diaphragm connections to Girders G and H in Bay G are loose and/or not fully engaged. There are gaps between the diaphragms and connection plates up to 9/16” wide at Girder G and up to 11/16” wide at Girder H (Photos 282-285).

Work Candidates

Status	Priority	Action	Date Proposed	Notes

RIDOT Bridge Inspection Report

020001
Washington Bridge South

Inspected By GREEN
Inspector: Hugo Ortega
Inspection Date 11/01/2024

Bridge Condition Fair

Equipment

Aerial Lift	☑
Boat	☑
Underbridgeinspvel	☐
Scaffolding	☐
BoesemansChair	☐
Waders	☐
Rail Mount Elliot	☐
Crash Truck	☑
Air Monitor	☐
Ladder	☐
Bucket Truck	☐
Rigging	☐
Floats	☐
Climbing	☐
Rail Mount Bucket Truck	☐
Light Tower	☑

Poison Ivy	☐
Heavy Vegetation	☐
Hurricane Evac Route ?	☐

Cones	Yes
Traffic Setup Req	Yes
Police Req	Yes
Night Insp Req	Yes
Signs	Yes

Speed Limit	50.00
Prep Time	6
Crew Slize	2
Under Insp Vehicle Time	0
Traffic Control Time	3
Mile Post	0.8
Crew Days	11
Time Report Time	136
Bucket Truck Time	0

Site Access Notes

Parking is available within the lane closures for the topside inspection. The underside of Spans 1-3 and 11-14 were inspected with an 85' manlift. The underside inspections of Spans 1 and 14 required nighttime lane closures. The underside of Spans 4-10 were inspected with a barge mounted 85' manlift.

Avg Curb Reveal North/East	
Avg Curb Reveal South/West	
Posted Weight Limit	
Posting Sign ?	☐
Post Signs Legible	-1
Post Sign Rec	-1
Adv Min Vert Clear Sign	02
Min Ver tClear Signs Leg	01
Min Vert Clear Post Vales	
Min Vert Clear Sign Rec	01
Old Rating and Postings	
RR Mile Post	
US DOT/AAR No.	

Telephone	☐
Sewer	☐
Cable	☐
Oil	☐
Fire Alarm	☐
OH Lines Present	☐
Water	☐
Gas	☐
Electric	☐
Fiber Optic	☐

12/11/2024

Bat and Bird Observations

Bats:

BATS_OBSERVED	BATS_VISUAL	BAT_DROPPINGS	BAT_STAINING	BAT_SOUNDS	BAT_PHOTOS
No	☐	☐	☐	☐	☐

BATS_NOTES

Birds

BIRDS_OBSERVED	BIRD_PHOTOS	BIRDS_SPECIES_IDENTIFIED
Yes	☐	☐

BIRD_NOTES