RIDOT Bridge Inspection Report

020001
Washington Bridge South

Inspected By WSP
Inspector: MATTHEW SULLIVAN
Inspection Date 04/04/2024

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
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): 7/1/2023
Frequency (91): 24
Next Inspection: 7/1/2025

Inspection Type	Freq (92)	Last Insp (93)	Next Insp
Element	24	7/1/2023	7/1/2025
Fracture Critical (A)		1/1/1901	1/1/1901
Underwater (B)	48	7/23/2021	7/21/2025
Special Insp (C)		1/1/1901	1/1/1901

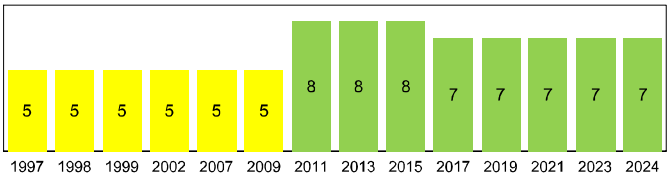
LOAD RATING AND POSTING

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

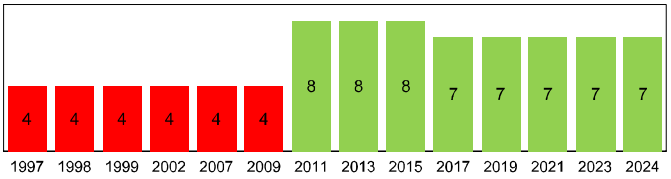


DECK CONDITION

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):	6 Equal Min Criteria

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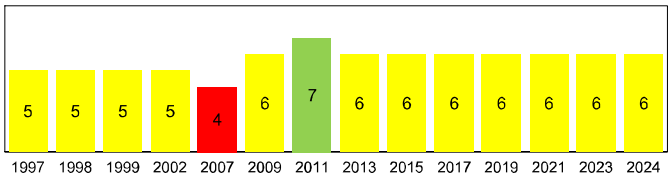
SUBSTRUCTURE GEOMETRY

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):	81,000 Cars/Day
Pct Trucks (109):	13.00%
ADT Year (30):	2021

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 EASTBOUND

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

ORIENTATION: The Bridge runs west to east, with the spans and piers numbered from west to east and girders labeled A through J from north to south in each span. At the Southeast corner of Span 14, there are two (2) additional kicker beams labeled Kicker Beams K and L that support the Exit 1 B-C ramp. The interior diaphragms are numbered from west to east in each span.

EQUIPMENT REQUIRED: 60' Manlift, Light Tower, Barge with 85' Manlift for spans over water, Local Police, State Police, Traffic Control and Crash Truck.

TRAFFIC CONTROL INFORMATION: Need traffic control for work in Span 1 over Gano Street, Span 14 over Waterfront Drive and Water Street and for the topside inspection. Due to the current traffic restrictions associated with the Washington Street Bridge (I-195 WB), all work requiring traffic control was performed at night to reduce the impact to the traveling public.

POLICE DETAIL NEEDED: Need Local Police detail for work in Span 1 over Gano Street and in Span 14 over Waterfront Drive. Need State Police for the topside inspection.

TEMPORARY MEDIAN BARRIER: At the time of this inspection, there was a temporary steel median barrier separating the eastbound and westbound traffic on the bridge. The barrier had no defects noted.

INSPECTION NOTES

WSP

HIGH PRIORITY SPECIAL INSPECTION

INSPECTION DATES: 03/25/2024 (Day), 03/27/2024 (Day and Night), 03/28/2024 (Day and Night), 03/29/2024 (Day), 04/01/2024 (Day), 04/02/2024 (Day) and 4/4/2024 (Night)

WEATHER: 03/25/2024 – 40 degrees Fahrenheit, Clear, 03/27/2024 – 55 degrees Fahrenheit, Sunny, 03/28/2024 – 51 degrees Fahrenheit, Rainy, 03/29/2024 – 50 degrees Fahrenheit, Overcast, 04/01/2024 – 50 degrees Fahrenheit, Cloudy, 04/02/2024 – 46 degrees Fahrenheit, Cloudy and 04/04/2024 – 40 degrees Fahrenheit, Cloudy.

TEAM LEADERS: Matthew Sullivan PE, Matthew Greer PE, Jeffrey Tully PE and Brandon Gale

STAFF INSPECTORS: Ryan Lutz, Peter Mosqueda, Justin Applebee and Reda Babas

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.

DEFLECTION AND VIBRATION: Minor deflection and vibration was noted during this inspection.

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. 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 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.

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: In Span 2, there are three (3) drain pipes through the concrete deck in Bay G that have rust. On the exterior face of the south railing at Pier 9, the electrical conduit flexible coupling at the joint is torn and detached. In Span 12, there is a cable secured along Interior Diaphragm 2 in Bays A through H. The conduit mounted to the underside of Girder G in Span 14 near Interior Diaphragm 3 has moderate rust on the north end.
In Span 6, on the north barrier, there is a junction box with two (2) of twelve (12) missing bolts (Photo 36).
In Span 4, on the north barrier, there is a junction box with one (1) of twelve (12) missing bolts (Photo 37).
In Span 2, on the south railing, the mile marker 0.8 sign mounted to the light pole is missing a bottom connection bolt (Photo 38).
At the exterior of the south and north barriers above Pier 4, there are two (2) conduits at the joint with torn rubber covers (Photos 39 and 40).

UNDER BRIDGE LIGHTS: There are four lights over Waterfront Drive which were on during the inspection and three lights over Water Street which were off during the inspection. There are also four (4) lights over the channel (Span 7) that were on during the inspection. None of the under bridge lights had noted defects.

Refer to the attached document labeled "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%	119,494.00	0%	0.00	0%	0.00
1080/3	Delamination/Spall/Patched Area	1.00	0%	0.00	100%	1.00	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)	119,492.00	0%	0.00	100%	119,492.00	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
8382/3	Stay-in-Place Form	97,500.00	96%	93,375.00	4%	4,125.00	0%	0.00	0%	0.00
1000/3	*Corrosion*	*4,125.00*	0%	0.00	100%	4,125.00	0%	0.00	0%	0.00
107/3	**Steel Opn Girder/Beam**	**16,364.00**	**100%**	**16,334.00**	**0%**	**24.00**	**0%**	**6.00**	**0%**	**0.00**
515/3	Steel Protective Coating	247,490.00	98%	242,490.00	2%	5,000.00	0%	0.00	0%	0.00
1000/3	Corrosion	15.00	0%	0.00	100%	15.00	0%	0.00	0%	0.00
1020/3	Connection	12.00	0%	0.00	50%	6.00	50%	6.00	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**	**100%**	**39.00**	**0%**	**0.00**	**0%**	**0.00**	**0%**	**0.00**
8368/3	Graffiti	1,190.00	100%	1,190.00	0%	0.00	0%	0.00	0%	0.00
210/3	**Re Conc Pier Wall**	**587.00**	**50%**	**293.00**	**50%**	**292.00**	**0%**	**2.00**	**0%**	**0.00**
1080/3	Delamination/Spall/Patched Area	3.00	0%	0.00	100%	3.00	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)	472.00	62%	293.00	38%	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**	**66%**	**113.00**	**32%**	**55.00**	**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)	168.00	100%	168.00	0%	0.00	0%	0.00	0%	0.00
220/3	**Re Conc Pile Cap/Ftg**	**218.00**	**99%**	**216.00**	**1%**	**2.00**	**0%**	**0.00**	**0%**	**0.00**
1190/3	Abrasion(PSC/RC)	218.00	99%	216.00	1%	2.00	0%	0.00	0%	0.00
225/3	**Steel Pile**	**6.00**	**100%**	**6.00**	**0%**	**0.00**	**0%**	**0.00**	**0%**	**0.00**
1000/3	Corrosion	1.00	100%	1.00	0%	0.00	0%	0.00	0%	0.00
234/3	**Re Conc Pier Cap**	**920.00**	**99%**	**909.00**	**1%**	**11.00**	**0%**	**0.00**	**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	1.00	0%	0.00	100%	1.00	0%	0.00	0%	0.00
1130/3	Cracking (RC and Other)	917.00	99%	909.00	1%	8.00	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	25.00	0%	0.00	0%	0.00	100%	25.00	0%	0.00
2350/3	Debris Impaction	23.00	0%	0.00	100%	23.00	0%	0.00	0%	0.00
2360/3	Adjacent Deck or Header	20.00	0%	0.00	0%	0.00	100%	20.00	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	62%	482.00	38%	300.00	0%	0.00	0%	0.00
3220/3	*Crack (Wearing Surface)*	*300.00*	0%	0.00	100%	300.00	0%	0.00	0%	0.00
1130/3	Cracking (RC and Other)	100.00	100%	100.00	0%	0.00	0%	0.00	0%	0.00
1190/3	Abrasion(PSC/RC)	1,160.00	0%	0.00	100%	1,160.00	0%	0.00	0%	0.00
331/3	**Re Conc Bridge Railing**	**3,318.00**	**100%**	**3,317.00**	**0%**	**0.00**	**0%**	**1.00**	**0%**	**0.00**

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1120/3	Efflorescence/Rust Staining	200.00	100%	200.00	0%	0.00	0%	0.00	0%	0.00
1130/3	Cracking (RC and Other)	3,109.00	100%	3,109.00	0%	0.00	0%	0.00	0%	0.00
7000/3	Damage	9.00	89%	8.00	0%	0.00	11%	1.00	0%	0.00
8060/3	Scupper	26.00	31%	8.00	4%	1.00	27%	7.00	38%	10.00
8107/3	Steel Opn Girder/Beam END	310.00	100%	310.00	0%	0.00	0%	0.00	0%	0.00
515/3	Steel Protective Coating	3,710.00	100%	3,710.00	0%	0.00	0%	0.00	0%	0.00
8213/3	R/C Return Wall	70.00	100%	70.00	0%	0.00	0%	0.00	0%	0.00
1130/3	Cracking (RC and Other)	70.00	100%	70.00	0%	0.00	0%	0.00	0%	0.00
8218/3	Backwall, All Types	171.00	98%	168.00	1%	1.00	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)	168.00	100%	168.00	0%	0.00	0%	0.00	0%	0.00
8316/3	Isolation Bearing	172.00	18%	31.00	75%	129.00	7%	12.00	0%	0.00
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
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	100%	804.00	0%	1.00	0%	0.00	0%	0.00
515/3	Steel Protective Coating	24,200.00	100%	24,200.00	0%	0.00	0%	0.00	0%	0.00
1020/3	Connection	1.00	0%	0.00	100%	1.00	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	119,494.00	0.00	0.00

The top of the grooved reinforced concrete deck is bare, with no 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, hairline to narrow transverse and longitudinal cracks, isolated medium to wide cracks and scattered spalls (Photos 5 to 8 & 11 to 16). The underside of the deck is covered with stay-in-place forms except for in Bay G and both overhangs (Photos 73 to 86). The forms have isolated areas of light to heavy rust and corrosion with isolated areas of section loss. 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 79 & 80). For this inspection report, defects will be noted in the westbound or eastbound lanes, due to the recent change in traffic configuration.

1080	Delamination/Spall/Patched Are3		1.00	sq.ft	0.00	1.00	0.00	0.00

Top of Deck:
In Span 11, near Pier 11 in the westbound right lane, there is a concrete repair patch measuring 12" long x 16" wide, with a spall measuring 12" long x 4" wide x 1/2" deep with map cracking (Photo 13).

In Span 12 over Pier 12, in the eastbound right through lane, there is a patch with edge spalling measuring 20" long x 10" wide x 1/2" deep (Photo 14).

In Span 14 in the eastbound right exit lane, there is a spall measuring 9" long x 12" wide x 1" deep with exposed rebar and an adjacent asphalt patch measuring 12" Ø (Photo 16).

Underside of Deck:
Along the underside of deck in Bay G there are mostly sealed previous temporary barrier anchor bolt holes along the length of the bridge along the south side of the longitudinal cold joint. There are a few scattered anchor bolts remaining in place (Photo 96) and scattered holes that have signs of previous leakage.

In Bay G of Span 4 at Pier 4, there is a spall measuring 8" long x 3" wide x 1" deep along the longitudinal cold joint (Photo 90).

In Bay G of Span 13, near Interior Diaphragm 1, there is an area of spalling/scaling measuring 3'-6" long x 2'-5" wide x 1/2" deep (Photo 103).

Along the longitudinal cold joint in Bay G of Span 14, the underside of deck has areas of chipping concrete throughout (Photo 104).

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

Underside of Deck:
In Bay G and both overhangs, the underside of the exposed deck has scattered hairline transverse cracks, some with light efflorescence throughout (Photos 79, 80, 89, 96 and 108).

There is a previous anchor bolt hole in Bay G of Span 9 located just west of the field splice that is not patched (open to the topside) with active leakage (Photo 101).

In Bay G, the following locations have minor leakage along the underside of the longitudinal cold joint:

- At Abutment 1
- Span 4 at Pier 4 (Photo 90).
- Span 9 at Pier 9 (Photo 219).
- At Abutment 2 (Photo 105).

1130	Cracking (RC and Other)	3	119,492.00	sq.ft	0.00	119,492.00	0.00	0.00

Top of Deck:
The top of the exposed deck has full width transverse hairline to narrow cracks spaced approximately 3'-0" throughout, scattered hairline to narrow longitudinal cracks and isolated medium to wide cracks (Photos 5 to 8 & 11 to 13, 15 & 16).

Underside of Deck:
The underside of deck in Bay G and both overhangs have scattered hairline transverse cracks spaced approximately 6'-0" apart throughout (Photos 79, 80 & 88). The cracks at the overhangs typically extend onto the vertical face of the barriers (Photos 30, 31 & 108).

8382	Stay-in-Place Form	3	97,500.00	sq.ft	93,375.00	4,125.00	0.00	0.00

Underside of Deck:
There are stay-in-place forms in all bays except for Bay G throughout the bridge. The forms have scattered areas of light to heavy rust and corrosion, mainly at the interfaces between the adjacent form sections, especially in Bays A and I. Areas of rust cover approximately 5% of the bay area in several spans (Photos 87, 91 to 95 & 97 to 100).

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

1000	*Corrosion*	*3*	*4,125.00*	*sq.ft*	*0.00*	*4,125.00*	*0.00*	*0.00*

The forms have scattered areas of light to heavy rust and corrosion, mainly at the interfaces between the adjacent form sections, especially in Bays A and I. Areas of rust cover approximately 5% of the bay area in several spans (Photos 87, 91 to 95 & 97 to 100).

In Span 4, from Pier 3 to the 4th Interior Diaphragm in Bay I, there are scattered ribs with light to moderate corrosion and rust staining (Photo 91).

In Span 5, at Bay I near Pier 4, the scupper downspout connection to the deck has moderate rust and the stay-in-place form around the connection have moderate rust and corrosion (Photo 92).

In Span 5, near Interior Diaphragm 2 of Bay I, the stay-in-place forms have two (2) areas of heavy corrosion (Photo 93).

In Span 5, near Interior Diaphragm 4 of Bay I, the stay-in-place forms have an area of heavy rust with holes along one (1) rib (Photo 94).

In Span 6, at Bay A near Pier 5, the scupper downspout connection to the deck has moderate rust and the stay-in-place forms around the connection have moderate corrosion (Photo 95).

In Span 7, in Bay I, between Interior Diaphragms 4 and 5 at Bay I, the stay-in-place forms have two (2) areas of heavy corrosion (Photo 97).

In Span 7, at Interior Diaphragm 6 of Bay I, the stay-in-place forms have two (2) areas of light to moderate corrosion (Photo 98).

In Span 8, at Interior Diaphragm 5 of Bay I, the stay-in-place form has one (1) rib with heavy corrosion (Photo 99).

In Span 9, between the field splice and the Interior Diaphragm 2 of Bay I, the stay-in-place forms have an area of heavy corrosion (Photo 100).

In Span 11, between Interior Diaphragms 1 and 2 of Bay A, the stay-in-place forms have an area of heavy rust with 100% section loss measuring 18" long x 4'-0" wide (Photo 148).

In Span 11, at Bay I near Pier 11, the scupper downspout connection to the deck has moderate to heavy rust and the stay-in-place forms around the connection have light to moderate corrosion (Photo 102).

In Span 14, near Interior Diaphragm 3 of Bay F, the stay-in-place forms have an area of heavy rust around the utility conduit measuring 12" long x 3'-0" wide (Photo 106).

In Span 14, between Interior Diaphragms 3 and 4 of Bay K, the stay-in-place forms have an area of rust measuring 6" long x 3'-0" wide near Interior Diaphragm 3, with additional isolated small spots of rust throughout (Photo 107).

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**	**16,334.00**	**24.00**	**6.00**	**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 Abutment 2, with two (2) rolled section kicker beams that support the flared section of deck along the south side of the bridge (Photos 73 to 86). 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 117, 153 & 160). At scattered locations throughout the bridge, the girders have uneven bottom flanges measuring 1/8" high out-of-plane with a few locations measuring up to 3/4" out-of-plane (Photos 113, 121 & 123). The fascia girders have scattered mis-drilled/unused holes near the piers adjacent to the scupper downspounts (Photos 109, 145 & 147). 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.

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

The weathering steel girders typically have a normal surface patina with some scattered areas of yellow to orange rust, most common along the top flanges and isolated locations of poorly formed patina (Photos 73 to 86).

The girders have scattered areas with light flaking patina, heaviest at the north face of Girder A (Photos 118 to 120, 126, 141, 146 & 158).

Below the deck joints at Abutment 1, Abutment 2, Pier 4, and Pier 9, the girder ends are painted for a length of approximately 11'-0". The painted girder ends have isolated locations of chipped, peeling, and bubbling paint throughout.

Specific coating deficiencies are as follows:
- Span 5, north face of Girder A near Pier 5: The girder has an area of inconsistent protective coating along the web (Photo 119).
- Span 7, south face of Girder A bottom flange between the east splice and Interior diaphragm 7: There is missing protective coating (Photo 130).
- Span 7, south face of Girder A top flange at the east splice: The top flange has an area of missing protective coating measuring 9" long x 5" wide (Photo 131).
- Span 9, south face of the Girder G web, just west of the splice: There is an area of unformed protective coating measuring full height x 12" long (Photo 143).
- Span 12: Girders E and F have scattered areas of poorly formed / orange patina along the lower webs and bottom flanges (Photos 149 & 150).
- Span 14, scattered girder splices: Scattered bottom flange splice plates have a loss of the patina coating (Photo 154).

1000	Corrosion	3	15.00	ft	0.00	15.00	0.00	0.00

In all spans, Girder A has scattered areas of flaking patina and patina loss with minor steel delamination along the north face and the underside of the bottom flange (Photo 118, 119, 128, 129, 141, 146, 151, 154, 156 & 158).

In Span 1, at Girder A and Girder B, the underside of the bottom flanges have minor steel delamination throughout (Photo 111).

In Span 5 at the splice, Girder A has minor delamination along the base of the web and bottom flange measuring up to 1/16" deep around the splice plates, as well as minor delamination to the bottom flange splice plates and bolts (Photo 118).

In Span 5, the south face of the Girder H top flange between Interior Diaphragms 1 and 2 has light rust measuring full length (Photo 122).

In Span 7, the north face of Girder A lower web has minor delamination at the base measuring up to 3" high at the west and east splices (Photos 128 & 129). Similarly, the south face of the west bottom flange splice plates have minor steel delamination.

In Span 7, Girder I has light rust along the south edge of the top flange measuring full length (Photo 134).

In Span 7, the south face of Girder J has minor steel delamination along the base of the web at the east splice measuring 2'-0" long x up to 2-1/2" high (Photo 135).

In Span 8, the south face of Girder B has light rust along the top flange from Pier 8 to the east splice (Photo 139).

In Span 8, in Bay H, Girder H and Girder I have light rust at the top flange measuring full length (Photo 140).

In Span 9, the south face of the Girder I top flange has light rust measuring full length (Photo 142).

In Span 10, the north face of Girder A at the splice has minor delamination along the lower web at the splice measuring up to 3" high (Photo 146).

In Span 11 between Interior Diaphragms 1 and 2: Girder A has an area of moderate to heavy rust/corrosion measuring 7'-0" long x full height on both flanges and the web (Photo 148).

In Span 13, the north face of Girder A at the splice has section loss measuring 4'-0" long x 3" high x up to 1/8" deep along the lower web (Photo 151).

In Span 14, the north face of Girder A at the west splice has an area of rust and delamination measuring 4'-0" long x 3" high x up to 1/16" deep along the lower web (Photo 154). Also in Span 14, Girder A has an area of delamination with section loss measuring 6'-0" long x 4" high x 1/16" deep at the north side and moderate rust measuring 5'-6" long x 2-1/2" high at the south side, both along the lower web at the east splice (Photos 155 & 156).

1020	Connection	3	12.00	ft	0.00	6.00	6.00	0.00

In Span 4, at the Girder C splice: The 2nd bolt from the east in the 2nd row from the south is not flush with the bottom flange splice plate (Photo 115).

In Span 4 at the Girder F splice: The 2nd bolt from the west in the 2nd row from the north is not flush with the bottom flange splice plate (Photo 116).

In Span 7, the west splice of Girder G has three (3) missing bolts in the bottom flange splice plate and the east splice has one (1) missing bolt, both in the bottom flange splice plates (Photos 132 & 133).

In Span 8, on the north face of the east splice of Girder G: The splice plate on top of the bottom flange is bent upward measuring up to 1/8" high x 3-1/2" long (north side) x 4-1/2" long (west side) (Photo 138).

In Span 8, at the Girders A & B east splice: The fill plates are sized approximately 1/8" too small, causing minor distortion at the bottom splice plate (Photo 136 & 137).

In Span 9, at the Girder A splice: The furthest northwest bolt is loose and undersized at the bottom flange (Photo 141).

In Span 10, at the Girder C field splice: The bottom flange splice plate has one (1) backed off bolt (Photo 144).

In Span 14, north face of Girder B at the east splice: One (1) nut is backed off and one (1) nut has negative threads at the top flange splice plate (Photo 159).

7000	Damage	3	3.00	ft	0.00	3.00	0.00	0.00

In Span 2, at Girder I near Interior Diaphragm 3: The bottom flange is bent upward measuring 3/4" high x 2'-0" long (Photo 113).

In Span 2, at Girder J near Interior Diaphragm 3: The bottom flange is bent slightly upwards (Photo 113).

In Span 3, south edge of Girder G bottom flange at Interior Diaphragm 3: There is an impact gouge measuring 1/2" long x 1/4" deep (Photo 114).

In Span 5, Girder G located 6'-0" from Pier 5: The bottom flange is bent upward measuring up to 1/8" high x 12" long (Photo 121).

In Span 14, at the south face of Girder B, between Interior Diaphragms 3 and 4: The bottom flange has an impact gouge measuring 2" long x 1/4" high (Photo 157).

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	39.00	0.00	0.00	0.00

There are three (3) reinforced concrete columns at each pier. 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 224 to 249).

8368	Graffiti	3	1,190.00	each	1,190.00	0.00	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 229, 236 to 239, 242, 244, 248 & 249).

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	293.00	292.00	2.00	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 scattered areas of missing mortar between masonry stones and random cracked or missing stones (Photos 250 to 257). There is vagrant debris at the base of Piers 6 and 7 but no signs of vagrant activity. Since much of the pier walls are below the water line, information from the 2021 Underwater Inspection has been included below. For detailed descriptions of underwater deficiencies and related photos, see the 2021 Underwater Inspection Report. Notes from the 2021 Underwater Inspection: The reinforced concrete pier walls are part of the original I-195 Eastbound structure and support Columns B and C and support the arches (Arches E and F) along with the Pedestrian / Bike Path Bridge (Br. No. 020021). For the Underwater Inspection, the pier wall for Bridge No. 020001 and Bridge No. 020021 was 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 3" to 6" deep between the stones, cracked stones and missing stones. The piers also have intermittent areas of footing/pile cap exposure with minor abrasion of the concrete.

1080	Delamination/Spall/Patched Are3		3.00	ft	0.00	3.00	0.00	0.00

At Pier 6, there are intermittent voids measuring up to 3'-0" long x 6" high x 6" deep along the interface of the stone facade and the concrete pier wall. On the east face, there is a missing stone measuring 2'-0" long x 2'-6" high near the south end (entrance to original pier interior) (Photo 251).

The west face of Pier 7 has a missing stone measuring 3'-6" long x 5'-0" high at the south end (entrance to original pier interior) (Photo 253).

Pier 10 has a spall measuring 12" high x 12" wide x 2" deep on top of the southwest corner of the pier wall (Photo 256).

At Pier 13, on the east face just south of Column C, there is an area of spalling at the decorative detail of the original bridge measuring 8'-0" long x up to 24" high with spalling up to 2" deep with exposed rebar (Photo 249).

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

Pier 13 has one (1) crack with moderate efflorescence measuring full height x up to 1/16" wide on the west face and one (1) crack with moderate efflorescence measuring full height x up to 1/16" wide on the east face (Photos 248 & 249).

1130	Cracking (RC and Other)	3	472.00	ft	293.00	179.00	0.00	0.00

The pier walls typically have scattered full vertical hairline cracks with efflorescence and rust staining. Wider and more extensive cracking is present as follows:

- Pier 4: At the south end of the pier, there is missing mortar on the east and west faces along the vertical joints, and vertical cracks measuring up to 1/8" wide at the west face stones. (Photos 230 & 250).
- Pier 6: On the west face of the pier there is a full-height crack in the 4th stone from the north end, in the 2nd row from the top (Photo 252).
- Pier 9: The top face and west face between Columns B and C were observed to have widespread areas of hairline map cracking throughout (Photo 240).
- Pier 9: The north face has a full height crack in the 2nd row of stones from the top (Photo 254).
- Pier 9: The west face has a full height crack in the 2nd row of stones from the top and an adjacent area of missing mortar, between Column C and the adjacent linear park (Photo 255).
- Pier 10: Between Columns B and C, there are three (3) transverse cracks across the top of the pier wall that extend down the vertical faces of the wall measuring full-width x 1/8" wide. There is also a vertical crack measuring 3'-0" high x 1/8" wide at the northwest corner (Photo 257).
- Pier 12: On the east face, there is a crack measuring full height x 1/16" wide between Columns B and C (Photo 247).

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

Notes from the 2021 Underwater Inspection have been retained below:

The piers typically have abrasion up to 1/2" deep throughout the exposed reinforced concrete below the stone facade and isolated areas of poor consolidation/section loss up to 1" deep. Specific locations of abrasion on the exposed reinforced concrete are as follows:

At Pier 5 there is a band of scaling full width x 3'-0" high x up to 3/4" deep across the North nose.

At Pier 7 there are various locations of scaling/section loss typically between 2-1/2" to 3-1/2 " deep on all four faces of the pier near the channel bottom, and up to 5" deep along the Southwest corner.

4000	Settlement	3	1.00	ft	0.00	1.00	0.00	0.00

Notes from the 2021 Underwater Inspection have been retained below:

At Pier 7, on both the West and East Faces of the pier, there are up to 1/4" wide vertical cracks extending from the top of the stone masonry facade down to the channel bottom near the midpoint of the pier wall, which may indicate slight settlement of the pier, as previously noted in the 2017 Underwater Inspection Report.

6000	Scour	3	100.00	ft	0.00	100.00	0.00	0.00

Notes from the 2021 Underwater Inspection have been retained below:

Since the 2017 Underwater Inspection, the exposure of the pile caps has remained relatively unchanged, with the exception of Pier 8. The pile cap exposure at Pier 8 has increased 1'-6" vertically and there is seal exposure up to 1-3" high. The previously noted exposure of the steps/pile caps at Piers 4 and 5 has remained relatively unchanged, there is no pile cap exposure observed at Piers 6 and 7, and the pile cap at Pier 9 has become exposed along the West side of the pier.

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 229, 241, 242, 244, 246, 247 & 248).

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	113.00	55.00	3.00	0.00

Abutment 1 is shared between Bridge 020001 and Bridge 070001 to the north. Abutment 2 is shared between Bridge 020001 and adjacent Bridge 020021 to the south. Both Abutments were observed to have random minor hollow areas, minor spalls and hairline cracks with and without efflorescence (Photos 266 & 269). There are scattered areas of light to moderate bird debris and construction debris on both abutment bridge seats (Photos 213, 268 & 274).

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

At the top north face of Abutment 2 there is a spall measuring 11" wide x 30" high x 7" deep with an adjacent hollow area measuring full-height x 12" wide (Photo 273).

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

Refer to Defect 1130 Cracking (RC and Other) for comments.

1130	Cracking (RC and Other)	3	168.00	ft	168.00	0.00	0.00	0.00

The Abutment 1 breastwall has scattered hairline vertical and diagonal cracks, most of which have been sealed. There are random areas of hairline map cracking along the top 10'-0" of the breastwall. There is a hairline horizontal crack along the base of the Abutment 1 breastwall below Bays H and I with leakage and efflorescence measuring 20'-0" long (Photo 267).

The breastwall of Abutment 2 below Bay D has a hairline horizontal crack with light efflorescence measuring 3'-0" long at mid-height (Photo 270) and three (3) sealed hairline diagonal cracks with efflorescence measuring 5'-0" long near the base (Photo 271). Below Girder J in Bay I, the breastwall has a hairline diagonal crack with efflorescence and rust staining measuring 2'-6" long at the base. The breastwall of Abutment 2 has efflorescence and leakage emanating from the horizontal construction joint near the base below Bay J to the south end (Photo 272). The north face of Abutment 2 has a crack measuring 1/4" wide x 9'-0" high below a spall near the bridge seat (Photo 273).

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	216.00	2.00	0.00	0.00

Pier 10 has an area of erosion at the northwest corner of the wall with an exposed portion of the pile cap measuring approximately 22'-0" long (Photo 242). For the piers in the water, information from the 2021 Underwater Inspection has been included below. For detailed descriptions of underwater deficiencies and related photos, see the 2021 Underwater Inspection Report. 2021 Underwater Inspection: The pier walls are founded on reinforced concrete pile caps with unknown type piles. The sloped concrete step/pile cap steps out 1'-6" to 2'-0" from the pier face then slopes downward at a 45° angle. At the Southeast corner of Pier 8, there are two timber piles protruding up through the pile cap.

1190	Abrasion(PSC/RC)	3	218.00	ft	216.00	2.00	0.00	0.00

Notes for the 2021 Underwater Inspection have been retained below:

The pile caps have abrasion up to 1/2" deep on the exposed surfaces.

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	6.00	0.00	0.00	0.00

This element can only be evaluated from underwater, therefore, information from the 2021 Underwater Inspection has been included below. For detailed descriptions of underwater deficiencies and related photos, see the 2021 Underwater Inspection Report. 2021 Underwater Inspection: This element shall be used to rate the condition of the steel encased reinforced concrete caisson piles at the North (upstream) end of the piers. Over the steel casing at the caisson piles, there is a fiberglass jacket in place that extends 13'-6" down from the underside of the concrete cap section, which has no significant deficiencies.

1000	Corrosion	3	1.00	each	1.00	0.00	0.00	0.00

2021 Underwater Inspection Notes:
At Piers 4 through 9, the steel casing at the caisson piles have minor corrosion with pitting up to 1/16" deep below the fiberglass jackets.

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	909.00	11.00	0.00	0.00

There are reinforced concrete pier caps at each pier that have a few scattered minor spalls and scattered hairline vertical cracks, typically adjacent to the columns. Some of the piers were observed to have pigeon debris on the beam seats and scattered areas of construction debris. At Pier 4, there is active leakage and debris at Girder I due to a tear in the joint seal above (Photo 259).

1080	Delamination/Spall/Patched Are3	2.00	ft	0.00	2.00	0.00	0.00

The west face of Pier 1 has a spall at the bottom edge below Bay C measuring 6" long x 3" high x 1/2" deep between columns A and B (Photo 258).

At Pier 6, the Girder C pedestal has a spall measuring 2-1/2" Ø x 1/2" deep at the southwest corner of the bearing masonry plate (Photo 260).

The underside of the Pier 6 cap has scattered exposed rebar chairs (Photo 261).

The underside of the Pier 9 cap between columns B and C has an area of honeycombing measuring full length x 3/4" wide x 3/4" deep (Photo 264).

The east face of Pier 13 has a spall measuring 6" Ø x 3/4" deep along the bottom edge below Girder D (Photo 265).

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

Refer to Defect 1130 Cracking (RC and Other) for comments.

1130	Cracking (RC and Other)	3	917.00	ft	909.00	8.00	0.00	0.00

The pier caps were observed to have scattered hairline vertical and diagonal cracks measuring up to full height, some with light efflorescence that are typically found adjacent to the columns (Photos 262 & 263). Some of the vertical cracks continue across the top and underside of the pier caps.

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

There is a strip seal expansion joint at Abutment 1. The joint has scattered torn, depressed, and missing sealant and light to moderate accumulation of debris (Photos 17 to 20).

2340	Seal Cracking	3	25.00	ft	0.00	0.00	25.00	0.00

The joint seal has areas of torn, depressed and missing sealant (Photos 17 to 20).

2350	Debris Impaction	3	23.00	ft	0.00	23.00	0.00	0.00

There is a light to moderate accumulation of debris within the joint (Photos 17 to 20).

2360	Adjacent Deck or Header	3	20.00	ft	0.00	0.00	20.00	0.00

The adjacent header has narrow to wide cracks along the full length of the joint (Photos 17 to 20).

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

There are pourable joint seals at the approach slab joints at both ends of the bridge. The pourable joint seals have spalls and wide cracking in the headers, moderate to heavy accumulation of debris, and missing sealant (Photos 17 to 20, 25 & 26).

2330	Seal Damage	3	2.00	ft	0.00	0.00	2.00	0.00

The Abutment 1 pourable joint has sections of missing sealant measuring up to 2'-0" long in the eastbound and westbound lanes (Photos 17 & 18).

2350	Debris Impaction	3	25.00	ft	0.00	0.00	25.00	0.00

There is moderate to heavy accumulation of debris within the Abutment 2 pourable joint (Photos 25 & 26).

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

The Abutment 1 and 2 pourable joint headers have narrow to wide transverse cracks along the joints with isolated cracks measuring up to 1/2" wide with minor spalls (Photos 17 to 20, 25 & 26).

Abutment 1 pourable joint:
- There is a spall of the adjacent header in the left wheel line along the westbound left lane measuring 7" long x 2'-8" wide x 3" deep (Photo 18).
- In the eastbound left and center lanes, there is a spall measuring 6" long x 4'-0" wide x up to 3" deep (Photo 20).

Abutment 2 pourable joint:
- At the westbound left lane, there is spalling in both wheel lines measuring up to 18" long x up to 6" wide x 2-1/2" deep, with minor settlement along the remaining portions within the lane (Photos 25 & 29).

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

There are modular expansion joints at Piers 4 and 9 and at Abutment 2. The modular expansion joints have areas of minor plow damage, areas of torn, missing and depressed sealant, and light to heavy accumulation of sand and debris (Photos 21 to 26).

2340	Seal Cracking	3	42.00	ft	0.00	0.00	0.00	42.00

The Pier 4 joint has an area of torn and missing sealant in the eastbound right lane measuring 7'-0" long (Photo 22).

The Pier 9 joint has areas of moderate depressions in the sealant (Photos 23 & 24).

The Abutment 2 modular joint has areas or torn, missing and depressed sealant throughout (Photos 25 & 26).

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 21 to 26).

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

The east header of the Pier 4 joint in the eastbound right lane, has a spall measuring 3-1/2" long x 20" wide x up to 1" deep (Photo 22).

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

The Pier 4 joint, in the eastbound right lane and right shoulder, has an area of minor plow damage to the steel armor (Photo 22).

The Pier 9 joint, in the eastbound lanes has areas of minor plow damage (Photo 24).

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 paved over with a bituminous wearing surface and is not visible. The east approach slab is bare, with no wearing surface (Photos 3, 4, 9 &10).

510	Wearing Surfaces	3	782.00	sq.ft	482.00	300.00	0.00	0.00

The west approach slab is paved over with a bituminous wearing surface that has minor to moderate wheel line rutting, narrow to medium longitudinal and transverse cracks and bituminous patches Photos 3, 4 & 27).

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
3220	*Crack (Wearing Surfac*	*3*	*300.00*	*sq.ft*	*0.00*	*300.00*	*0.00*	*0.00*
	The bituminous wearing surface over the west approach slab has a long bituminous patch over a seam crack and potholes in the second travel lane from the south measuring up to 50'-0" from the bridge (Photo 27).							
1130	Cracking (RC and Other)	3	100.00	sq.ft	100.00	0.00	0.00	0.00
	The top of the east approach slab has scattered longitudinal cracks in the off-ramp lane and in the westbound left lane (Photos 10 & 29).							
1190	Abrasion(PSC/RC)	3	1,160.00	sq.ft	0.00	1,160.00	0.00	0.00
	The east approach slab has areas of minor to moderate wear as well as a few minor gouges and scrapes (Photos 9 & 10).							

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**	**3,317.00**	**0.00**	**1.00**	**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. At the southwest approach rail, the barriers are misaligned and not secured to each other, leaving a gap between barriers. The barrier protrudes into the shoulder beyond the bridge railing measuring up to 38" (Photo 35).							
1120	Efflorescence/Rust Staining	3	200.00	ft	200.00	0.00	0.00	0.00
	The exterior face of the bridge rails along both sides of the bridge have hairline vertical through cracks with efflorescence measuring up to full height throughout (Photos 30 & 31).							
1130	Cracking (RC and Other)	3	3,109.00	ft	3,109.00	0.00	0.00	0.00
	The concrete railings have scattered full height hairline vertical through cracks, some with light efflorescence along the exterior faces with spacing measuring up to 3'-0" apart throughout (Photos 32 & 33). In Span 9, the south bridge railing has an 8" long hairline crack extending from the northwest anchor bolt of the 6th light standard from the west end (Photo 53). The south railing at the east 1/3 point in Span 11 has six (6) gouges measuring up to 2'-0" long x up to 3" wide x up to 3/8" deep (Photo 34).							
7000	Damage	3	9.00	ft	8.00	0.00	1.00	0.00
	Both bridge railings were observed to have scattered minor impact scrapes along the interior faces of the barriers (Photo 32).							

ELEM	ELEMENT NAME	ENV	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
8060	**Scupper**	**3**	**26.00**	**each**	**8.00**	**1.00**	**7.00**	**10.00**

The scupper grates consist of a three (3) piece slotted grate with two (2) connection bolts per grate section. Some 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. Many of the original scupper grates have cracks adjacent to the anchor bolts that result in loose grate sections. Also, the majority of the replacement grate tack welds have broken and are loose (Photos 59 to 72). Additionally, the majority of the scupper grates are 50% to 75% clogged with send and debris, however the downspouts are clear. At two (2) locations, the Pier 1 north and Pier 7 south scuppers, the downspouts are completely clogged and there is standing water within the scupper. During the inspection RIDOT was notified of the fourteen (14) of twenty-six (26) scupper drains with cracked, loose and/or broken grate sections, as well as the broken tack welds along the majority of the replaced sections. For the locations of completely clogged, broken and loose grates, see "Table 1 – Element 8060 - Scupper Grates.pdf". 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. WSP recommended regular inspections 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 Abutment 2 that has caused standing water along the base of the breastwall extending up to the full length of the abutment. The downspout at Abutment 1 below Bay I has evidence of a past clogged bell reducer due to leakage staining along the pipe (Photo 109). On the west face of Pier 3, the north downspout has a severed anchor rod at mid height (Photo 228).

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	310.00	0.00	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 surface rust. There are also isolated locations of concrete overpour. The girder ends have unused/miscellaneous drilled bolts at several locations throughout (Photo 109).

515	Steel Protective Coating	3	3,710.00	sq.ft	3,710.00	0.00	0.00	0.00

The painted girder ends were observed to be in overall good condition with isolated areas of chipped and peeling paint with light rust (Photos 109, 110, 112, 117, 124, 145 & 160).

The north face of Girder A at Abutment 1 has an area of peeling and bubbling paint along the lower web and north half of the bottom flange measuring 18" long x 9" wide (top and bottom faces of bottom flange) x 4" high (Photo 110).

In Span 4 at Pier 4, the north face of Girder H has peeling paint with light rust on the bottom flange and bottom of the web (Photo 214).

In Span 4 at Pier 4, the bottom flange of Girder J has peeling paint with light to moderate rust (Photo 117).

In Span 5 at Pier 4, the north face of Girder A has an area of peeling paint with light rust measuring 2'-0" long x full width of the bottom flange x up to 3" high along the web over the bearing (Photo 175).

In Span 5 at Pier 4, the south face of Girder J has an area of light to moderate rust on the bottom flange over the bearing and the north face has a few scattered areas of peeling paint with light to moderate rust (Photo 124).

At Pier 9, the south face of Girder J in Spans 9 and 10 has moderate surface rust on the bottom flange that extends onto the bearing stiffeners (Photo 201).

In Span 10, the west face of the bearing stiffeners are not painted at Girders G and H over Pier 9 (Photos 220 & 221).

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	70.00	0.00	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. There is minor vegetation growth along the base of the wall (Photo 277).

1130	Cracking (RC and Other)	3	70.00	ft	70.00	0.00	0.00	0.00

The northeast return wall has hairline vertical cracks that extend from the weep holes measuring up to 10'-0" high in the architectural finish (Photo 277).

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	168.00	1.00	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.

1080	Delamination/Spall/Patched Are3		2.00	ft	0.00	0.00	2.00	0.00

The north end of the Abutment 2 backwall has a spall measuring 2'-0" wide x 7" high x 12" deep behind Girder A at the top (Photo 276).

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

Refer to Defect 1130 Cracking (RC and Other) for comments.

1130	Cracking (RC and Other)	3	168.00	ft	168.00	0.00	0.00	0.00

Both backwalls have scattered full-height hairline vertical cracks, some with light efflorescence (Photos 274 & 275).

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	31.00	129.00	12.00	0.00

There are isolation bearings at all piers and both abutments. Several of the bearings have light to moderate rust and concrete debris/over-pour from construction. There are widespread locations of misalignment and girder bottom flanges that are not centered on the sole plate, which are a result of construction. The previously included bearing defect table has been reduced to 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 167, 182, 196 & 202). For specific locations of these gaps, see attachment "Table 2 - Element 8316 – Isolation Bearings.pdf".

1000	Corrosion	3	42.00	each	0.00	42.00	0.00	0.00

There are widespread areas of light to moderate surface rust on the bearing assemblies throughout the bridge, most prevalent below the deck joints at both abutments and Piers 4 and 9 (Photos 160, 161, 175, 178, 187, 191, 192, 204 & 205).

At Abutment 2, the Girder H bearing has heavy rust to the masonry plate. Additionally, the Kicker Beam L bearing has moderate to heavy surface rust on the masonry plate (Photos 209 & 212).

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 162 to 166, 168 to 171, 179 to 181, 183 to 186, 188 to 190, 193 to 195, 197 to 201, 203, 204 & 206 to 212)

For specific locations of anchor bolt deficiencies, see attachment "Table 2 - Element 8316 – Isolation Bearings.pdf".

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 1/4" (Photos 172, 173 & 176). For specific deficiency locations and details, see attachment "Table 2 - Element 8316 – Isolation Bearings.pdf".

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

Most of the bearings have small gaps between the masonry plate and the top surface of the concrete pedestal along the north and south edges of the masonry plate, measuring up to 1/2" high. 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.

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	804.00	1.00	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. The end diaphragms below the deck joints at the abutments and at Piers 4 and 9 are painted.

515	Steel Protective Coating	3	24,200.00	sq.ft	24,200.00	0.00	0.00	0.00

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 rust. The end diaphragms below the deck joints at both abutments and at Piers 4 and 9 and a few interior diaphragms near Abutment 2 are painted.

At Abutment 1, the end diaphragm in Bay G has small areas of light rust on the east edge of the bottom flange (Photo 213).

In Span 4 at Pier 4, the end diaphragm in Bay G has an area of peeling paint and light rust along the center of the top flange (Photo 90) and along the bottom flange at the connection to Girder H (Photo 214).

In Span 5, Bay A, intermediate diaphragms 2, 3, and 4 have minor loss of patina on the bottom angle (Photo 215).

In Span 9, Bay G at Pier 9, the end diaphragm has peeling paint and light rust/corrosion at the top flange due to leakage from the cold joint in the deck (Photo 219).

In Span 10, the west face of the of the end diaphragm connection plates and bolts at Pier 9 are not painted (Photos 220 & 221).

In Span 14, Bay H, interior diaphragm 7 has minor peeling paint (Photo 222).

1020	Connection	3	1.00	each	0.00	1.00	0.00	0.00

In several spans, the interior diaphragms in Bay G have plate washers overlapping adjacent washers and slightly bent washers.

In Bay G, at Pier 5, the end diaphragm connection to Girder G has two (2) bolts with gaps measuring up to 1/4" at the bottom row (Photo 216).

In Span 6 at interior diaphragm 6, the top bolt at the top connection plate on the south face of Girder G has a crack on the underside measuring the full thickness of the bolt head (Photo 217).

In Span 7, at interior diaphragm 4 the second bolt from the bottom is loose and bent at the south face of Girder F (Photo 218).

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. At Girder G, there is a gap between the diaphragm and connection plate measuring up to 9/16" wide (Photo 220) and at Girder H, there is a gap measuring up to 11/16" wide (Photo 221).

Throughout the bridge, in Bay G there are filler plates installed at the connections to the girders (Photo 223).

Work History

From completed work candidates.

Agency

Completion Date	Action	Notes
09/19/2023		Generated by user "william.lucas@dot.ri.gov" on 9/20/2023. See pictuers in Mutimedia section:
09/20/2023		Generated by user "william.lucas@dot.ri.gov" on 9/20/2023. scuppers and drains cleaned, also Joints glands cleaned.

Work Candidates

Status	Priority	Action	Date Proposed	Notes

RIDOT Bridge Inspection Report

020001
Washington Bridge South

Inspected By WSP
Inspector: MATTHEW SULLIVAN
Inspection Date 04/04/2024

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	No
Signs	Yes

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

Site Access Notes

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	☐

4/30/2024

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