

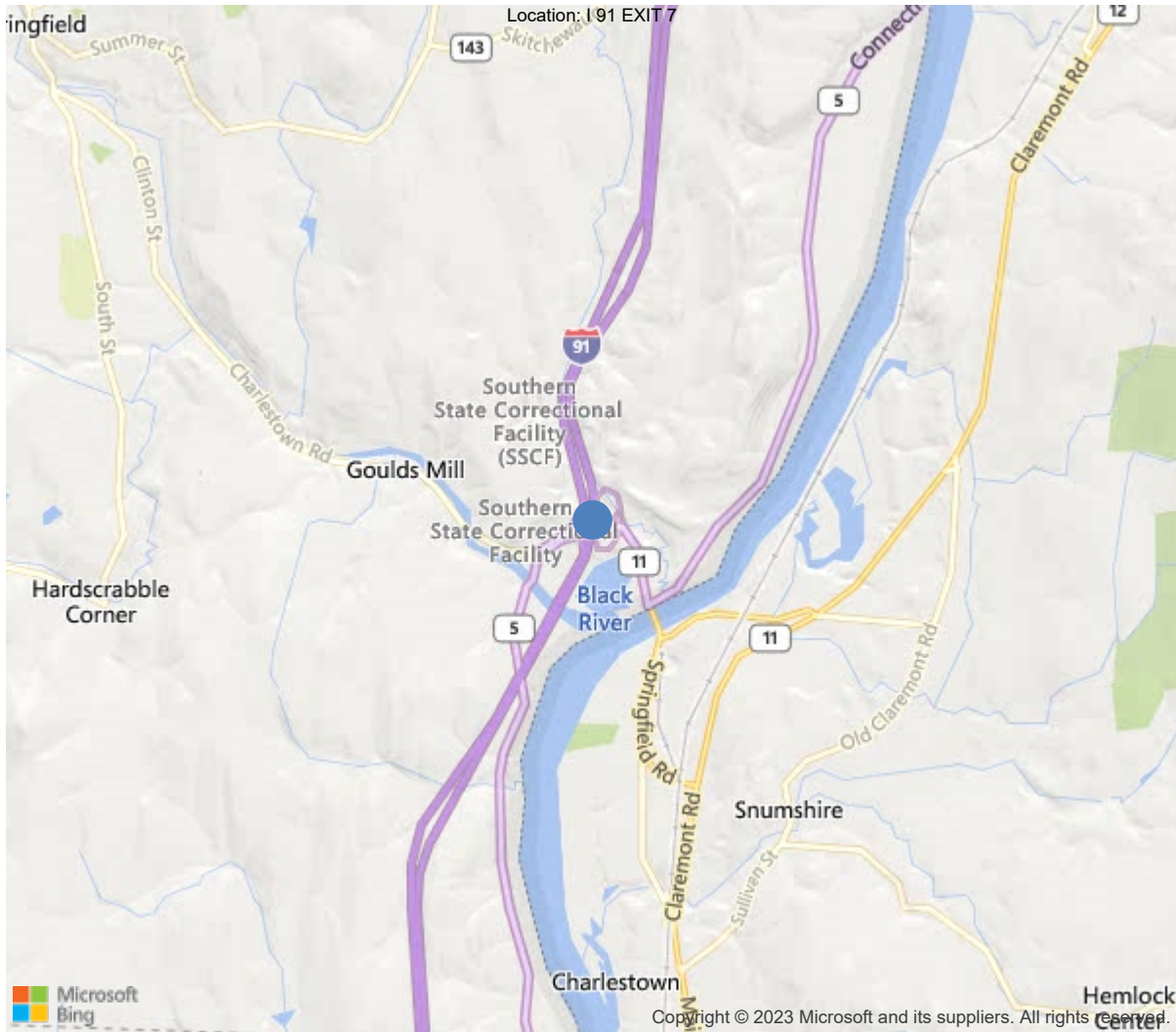


Town: 206 - SPRINGFIELD

District 2, 27 - WINDSOR County

Owner: 1 - State Highway Agency

Maintenance Responsibility: 1 - State Highway Agency



43.26684, -72.43253

IDENTIFICATION	
(1) State Names	50 - Vermont
(8) Structure Number	200091028N14182
(5) Inventory Route	1
(2) Highway Agency District	2 - District 2
(3) County Code	27 - WINDSOR
(4) Place Code	69550
(6) Features Intersected	I 91 OVER US 5
(7) Facility Carried	I 00091 ML
(9) Location	I 91 EXIT 7
(11) Mile Point	41.681 mi
(12) Base Highway Network	Yes
(13) LRS Inventory Rte & Subrte	0270000091
(16) Latitude	43.2668416666667
(17) Longitude	-72.432525
(98) Border Bridge State Code	
(99) Border Bridge Structure No.	
STRUCTURE TYPE AND MATERIAL	
(43) Main Structure Type	32
Material	3 - Steel
Type	2 - Stringer/Multi-beam or girder
(44) Approach Structure Type	00
Material	0 - Other
Type	0 - Other
(45) No. of Spans in Main Unit	4
(46) No. of Approach Spans	0
(107) Deck Structure Type	1 - Concrete Cast-in-Place
(108) Wearing Surface/Protective System	
Type of Wearing Surface	6 - Bituminous
Type of Membrane	2 - Preformed Fabric
Type of Deck Protection	0 - None
AGE AND SERVICE	
(27) Year Built	1965
(106) Year Reconstructed	0
(42) Type of Service	11
On	1 - Highway
Under	1 - Highway, with or without pedestrian
(28) Lane	
On	3
Under	4
(29) Average Daily Traffic	13000
(30) Year of ADT	2018
(109) Truck ADT	13 %
(19) Bypass, Detour Length	0 mi
GEOMETRIC DATA	
(48) Length of Maximum Span	55 ft
(49) Structure Length	202 ft
(50) Curb or Sidewalk Width	
Left	0.7 ft
Right	0.7 ft
(51) Bridge Roadway Width Curb to Curb	42 ft
(52) Deck Width Out to Out	47 ft
(32) Approach Roadway Width (W/Shoulders)	45 ft
(33) Bridge Median	1 - Open median
(34) Skew	11 Deg
(35) Structure Flared	0 - No flare
(10) Inventory Route Min Vert Clear	99.99 ft
(47) Inventory Route Total Horiz Clear	42 ft
(53) Min Vert Clear Over Bridge Rdwy	99.99 ft
(54) Min Vert Underclear	14.92 ft
Ref:	
(55) Min Lat Underclear RT	10 ft
Ref:	
(56) Min Lat Underclear LT	5 ft
NAVIGATION DATA	
(38) Navigation Control	N - Not applicable, no waterwa
(111) Pier Protection	
(39) Navigation Vertical Clearance	0 ft
(116) Vert-Lift Bridge Nav Min Vert Clear	0 ft
(40) Navigation Horizontal Clearance	0 ft

CLASSIFICATION	
(112) NBIS Bridge Length	Y
(104) Highway System	1
(26) Functional Class	1 - Rural Principal Arterial -
(100) Defense Highway	1 - The inventory route is on
(101) Parallel Structure	R - The right structure of par
(102) Direction of Traffic	1 - way traffic
(103) Temporary Structure	
(105) Federal Lands Highways	0 - N/A
(110) Designated National Network	1 - The inventory route is par
(20) Toll	3 - On free road. The structu
(21) Maintain	1 - State Highway Agency
(22) Owner	1 - State Highway Agency
(37) Historical Significance	5 - Bridge is not eligible for
CONDITION	
(58) Deck	5
(59) Superstructure	5
(60) Substructure	5
(61) Channel & Channel Protection	N
(62) Culverts	N
LOAD RATING AND POSTING	
(31) Design Load	4 - M 18 / H 20
(63) Operating Rating Method	1
(64) Operating Rating	
Type	1 - Load Factor(LF)
Rating	74
(65) Inventory Rating Method	1 - Load Factor(LF)
(66) Inventory Rating	
Type	
Rating	44
(70) Bridge Posting	5 - Equal to or above legal loads
(41) Structure Open/Posted/Closed	A - Open, no restriction
APPRAISAL	
(67) Structural Evaluation	5
(68) Deck Geometry	4
(69) Clearances, Vertical/Horizontal	3
(71) Waterway Adequacy	N
(72) Approach Roadway Alignment	6
(36A) Bridge Railings	1 - Inspected feature meets current
(36B) Transitions	1 - Inspected feature meets current
(36C) Approach Guardrail	1 - Inspected feature meets current
(36D) Approach Guardrail Ends	1 - Inspected feature meets current
(113) Scour Critical Bridges	N - Bridge not over waterway.
PROPOSED IMPROVEMENTS	
(75) Type of Work	35 - Bridge rehabilitation bec
(76) Length of Structure Improvement	202 ft
(94) Bridge Improvement Cost	\$ 3323
(95) Roadway Improvement Cost	\$ 50
(96) Total Project Cost	\$ 3373
(97) Year of Improvement Cost Estimate	2020
(114) Future ADT	13650
(115) Year of Future ADT	2028

INSPECTIONS *			
(90) Inspection Date			05/25/2022
(91) Frequency			24
(92) Critical Feature Inspection	Done	Freq. (Mon)	Date
A: Fracture Critical Detail	No		
B: Underwater Inspection	No		
C: Other Special Inspection			
* The inspection date and frequency information in this box contains the current NBI date and frequency information. Please refer to the report header for the date this inspection was conducted.			

Team Lead: Martin Kelley, Inspection Date: 05/25/2022

Deck

ELEMENTS	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
12	Reinforced Concrete Deck	SF	9494	5604	2000	1850	40
1080	Delamination/Spall/Patched Area	SF	2090	0	750	1300	40
1120	Efflorescence/Rust Staining	SF	1300	0	1000	300	0
1130	Cracking (RC and Other)	SF	500	0	250	250	0
510	Wearing Surfaces	SF	8484	6284	1200	1000	0
3210	Delam/Spall/Patched Area/Pothole	SF	600	0	0	600	0
3230	Effectiveness (Wearing Surface)	SF	1600	0	1200	400	0
301	Pourable Joint Seal	LF	43	28	15	0	0
2340	Seal Cracking	LF	15	0	15	0	0
305	Assembly Joint without Seal	LF	86	0	56	6	24
2330	Seal Damage	LF	6	0	0	6	0
2360	Adjacent Deck or Header	LF	56	0	56	0	0
2370	Metal Deterioration or Damage	LF	24	0	0	0	24
330	Metal Bridge Railing	LF	404	202	202	0	0
7000	Damage	LF	202	0	202	0	0
804	Concrete Fascia	LF	404	124	145	120	15
1080	Delamination/Spall/Patched Area	LF	105	0	0	90	15
1120	Efflorescence/Rust Staining	LF	115	0	100	15	0
1130	Cracking (RC and Other)	LF	60	0	45	15	0

58 - Deck (5 - FAIR CONDITION - all primary structural elements are sound but may have minor section loss, cracking, spalling or scour.)

Reinforced concrete deck is in fair condition having scattered large delaminations and transverse cracking with rust staining and efflorescence leakage present along the underside of deck. Large areas of patched areas are scattered throughout the deck underside are starting to become unsound with areas respalling. Large area of spalling is present in span #2 bay #3 that has exposed the first and second layer of steel reinforcing that has started to progress into concrete above reinforcing. Span #3 bay #5 has large patched area that is unsound with exposed steel reinforcing and is respalling.

200 - Existing pavement depth on bridge (3")

A21 - Deck Wearing Surface Condition (4 - Fair)

Asphalt is in fair to poor condition with minor wearing in travel lanes and scattered cracking and small depressions along the top surface. Patches are present around joints with deterioration continuing to progress. Recent repairs have been completed with large cut out areas and new asphalt put in place which is holding up at this time.

A24 - Deck Curb Condition (4 - Fair)

Concrete curbing with granite block facing is in fair to poor condition having areas of heavy concrete scaling and cracking behind granite blocks. A few of the granite blocks have slight translation away from concrete curbing. Heavy spalling exposing steel reinforcing is present in span #2 on the eastern fascia and surrounding joint areas. Remaining areas have lighter spalling / scaling scattered throughout.

A28 - Deck Rail Condition (3 - Satisfactory)

Galvanized two (2) tier box beam rail is in satisfactory condition having some minor scrapes, gouges and dents with scrapes starting to rust along the face. Top tier of rail has a couple scattered missing rail bolts. Snow fence has heavy rusting around connections with some connections missing over US-5

A31 - Deck Post Condition (3 - Satisfactory)

Pedestal mounted galvanized steel tube posts are satisfactory condition with some minor rusting along the bases and minor wear.

A34 - Deck Joint Condition (4 - Fair)

Steel finger plate joints are present over both abutments with steel plates having minor to moderate pitting and rusting along the curb lines and gouges and scrapes in travel lanes. Small section of steel plate is missing over abutment #2 near center line. Steel housing below has heavy rusting. Asphaltic plug joint is present over pier #2 having minor wear and a small patch on the eastern side.

A36 - Deck Joint Trough Condition (3 - Satisfactory)

Fabric troughs are present over both abutments having minor to moderate build up of sediment / debris. Steel plate connectors are loose and pulling away from deck and backwall allowing leakage to structure below.

A38 - Deck Drain Condition (3 - Satisfactory)

Weep tubes are present along both fascias but are short and drop onto superstructure.

A39 - Deck Fascia Condition (5 - Poor)

Concrete fascia is in poor condition having heavy spalling exposing the steel reinforcing in span #2 on the eastern fascia. Other areas of heavy spalling / scaling are present around joints and minor cracking and rust stains are scattered throughout. Areas surrounding joints have heavy spalling that has exposed the steel reinforcing.

APPROACH

72 - Approach Roadway Alignment (6 - Equal to present minimum criteria)

Roadway alignment has a minor curve throughout and is fairly flat.

A13 - Approach Rail Condition (3 - Satisfactory)

Galvanized steel beam rail is in satisfactory condition having areas of flattened out rail with minor scrapes and dents. Older sections of rail have freckling surface rust and rusting along scrapes.

A16 - Approach Post Condition (3 - Satisfactory)

Galvanized steel posts with a mixture of composite and steel offsets are in satisfactory condition. Older steel offsets and posts have minor dents and bends present with some light surface rusting.

A18 - Approach Erosion/Settlement (5 - Severe)

Heavy erosion along northwest embankment.

Superstructure

ELEMENTS	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
107	Steel Open Girder/Beam	LF	1414	769	280	360	5
1000	Corrosion	LF	645	0	280	360	5
515	Steel Protective Coating	SF	10428	9128	0	400	900
3420	Peeling/Bubbling/Cracking	LF	1300	0	0	400	900
311	Movable Bearing	EA	28	7	5	16	0
1000	Corrosion	EA	19	0	5	14	0
2240	Loss of Bearing Area	EA	2	0	0	2	0
313	Fixed Bearing	EA	14	0	0	14	0
1000	Corrosion	EA	14	0	0	14	0

59 - Superstructure (5 - FAIR CONDITION - all primary structural elements are sound but may have minor section loss, cracking, spalling or scour.)

Seven (7) painted steel rolled beams are present per span are in fair to poor condition having areas of heavy rust scaling and thinning with beam #1 in spans #2 and #3 having heaviest corrosion and section loss at pier #2. Beam #1 at Pier #2 in Span #3 has section loss along the lower portion of web with large perforation that continues to corrode. Steel I-beam support has been put in place to supplement for loss in front of bearing area the extends from ground to bottom of flange with web stiffeners bolted in place. Heaviest corrosion is present along the beam ends at both abutments and over pier #2 where continuous leakage from open joints progresses corrosion. Fascia beams have lighter corrosion from weathering. Beams have neutral to slightly positive camber. Protective layer has failed at both abutments and at pier #2 below deck joints that continually allow leakage to structure below. Paint has areas of distress along the lower portions of the web and flanges throughout remaining beams and spans with peeling and flaking of protective layer.

A55 - Lateral Bracing Condition (3 - Satisfactory)

Spans #1 and #4 have three (3) while spans #3 and #4 have two (2) painted steel c-channels present per bay that are bolted to plates that are welded to the webs of the rolled beams. C-Channel diaphragms at abutments have minor rusting and rust scaling from continuous joint leakage. Remaining diaphragms are in satisfactory condition having some small areas of surface rusting where paint has started to peel. Additional w-shape diaphragms are present over each pier (three (3) total) with pier #2 having moderate to heavy rust scaling and areas of section loss around connections present. W-shape bracing over pier #1 and #3 are in satisfactory condition.

A63 - Bearing Condition (4 - Fair)

Steel rocker bearings are present over both abutments and piers #1 and #3. Pier #2 has fixed rockers. Both abutments and pier #2 have joints present allowing leakage with bearings having moderate to heavy rust scaling. Rockers over abutments and pier #1 and #3 have allowable rotation. Bearing #1 over pier #2 has heavy concrete scaling around bearing area. Bearing #1 at abutment #2 has heavy spalling around bearing area. Bearing #7 is "floating" with large delamination present at bearing area over abutment #2. *2019 Repair has installed steel w-shape vertical member before bearing#1 in span #3 at pier #2.

Team Lead: Martin Kelley, Inspection Date: 05/25/2022

Substructure

ELEMENTS	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
205	Reinforced Concrete Column	EA	12	2	2	8	0
1080	Delamination/Spall/Patched Area	EA	8	0	0	8	0
1130	Cracking (RC and Other)	EA	2	0	2	0	0
215	Reinforced Concrete Abutment	LF	96	20	38	26	12
1080	Delamination/Spall/Patched Area	LF	20	0	0	8	12
1120	Efflorescence/Rust Staining	LF	32	0	20	12	0
1130	Cracking (RC and Other)	LF	24	0	18	6	0
234	Reinforced Concrete Pier Cap	LF	147	100	0	40	7
1080	Delamination/Spall/Patched Area	LF	42	0	0	35	7
1120	Efflorescence/Rust Staining	LF	5	0	0	5	0
800	Reinforced Concrete Wing/Retaining Wall	EA	4	0	4	0	0
1120	Efflorescence/Rust Staining	EA	4	0	4	0	0

60 - Substructure (5 - FAIR CONDITION - all primary structural elements are sound but may have minor section loss, cracking, spalling or scour.)

Reinforced concrete abutment #1 is in satisfactory condition having minor cracking with rust stains scattered throughout the stem.

Reinforced concrete abutment #2 is in fair condition nearing poor condition having heavy to severe concrete scaling below bearing #1 exposing thinning steel reinforcing. Delaminations are forming along bridge seat / abutment stem around previously patched areas and heavy cracking. Efflorescence leakage and rust staining is present surrounding cracking and previously patched areas with some of them becoming unsound.

A71 - Abutment End Walls Condition (4 - Satisfactory)

Reinforced concrete backwalls are in okay condition having minor cracking and areas of rust staining. Areas of minor concrete scaling are present at edges of backwalls below curb lines from leakage at joints.

A77 - Retaining/Wingwall Condition (3 - Good)

Concrete wingwalls are in fairly good condition having light map cracking.

A81 - Pier Seat/Cap Condition (5 - Fair)

Pier #1 and #3 are in fairly good condition. Pier #2 has heavy concrete scaling / spalling exposing steel reinforcing with heaviest deterioration present along the western side of cap. Pier #2 cap has delaminations and cracking with rust stains and efflorescence scattered throughout. Laid up timber bunking is present along the western side to stabilize superstructure having

A85 - Pier Columns Condition (4 - Satisfactory)

All three (3) piers have four (4) columns each. Pier #1 columns are in fairly good condition with a few hairline cracks. Pier #2 has unsound concrete patch on column #1 and large delaminations and cracking ~1/4"+ wide throughout other columns with rust staining. Pier #3 has spalling that has exposed the steel reinforcing and delaminations forming in each column with cracking up to 1/4" wide.

CHANNEL

61 - Channel/Channel Protection (N - Not applicable.)

GENERAL OBSERVATION

Structure is in need of a major rehabilitation project or replacement in the near future due to progressive deterioration from continuous leakage and wearing. Deck continues to deteriorate and is littered with previous patches with some being unsound and newly forming delaminations and spalls that have exposed the steel reinforcing. Highly probably full depth hole is present in span #2 in bay #4 that has deep spalling that is starting to penetrate concrete above steel reinforcing. Asphalt over structure has large areas of patches scattered throughout the top surface and surround joint areas. Heavy concrete scaling is present along eastern fascia in span #2 but is not limited to and needs to be cleaned and patched or have catch forms installed over US-5 travel lanes to prevent falling debris. Beam #1 in span #3 should be plated or be fully replaced due to large perforation along the lower portion with measurable section loss. Beam ends at abutments and at pier #2 have protective layer failure from continuous joint leakage which has allowed for progressive corrosion and are in need of repairs. Joints still allow heavy leakage to structure below and should be replaced. Heavy spalling / scaling and delaminations with rust staining are present over pier #2 along the cap and are in need of repairs. Abutment #2 stem /bridge seat also have deep spalling that has exposed the steel reinforcing and are starting to undermine both exterior bearings (bearings #1 and #7) and should be cleaned and patched. Pier columns along pier #2 and #3 have spalling / delaminations and/or cracking along the face of columns that coincide with direction of traffic flow. Snow fence has heavy corrosion around connections with a few sections of fence being loose.

ELEMENTS	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
12	Reinforced Concrete Deck	SF	9494	5604	2000	1850	40
1080	Delamination/Spall/Patched Area	SF	2090	0	750	1300	40
1120	Efflorescence/Rust Staining	SF	1300	0	1000	300	0
1130	Cracking (RC and Other)	SF	500	0	250	250	0
510	Wearing Surfaces	SF	8484	6284	1200	1000	0
3210	Delam/Spall/Patched Area/Pothole	SF	600	0	0	600	0
3230	Effectiveness (Wearing Surface)	SF	1600	0	1200	400	0
107	Steel Open Girder/Beam	LF	1414	769	280	360	5
1000	Corrosion	LF	645	0	280	360	5
515	Steel Protective Coating	SF	10428	9128	0	400	900
3420	Peeling/Bubbling/Cracking	LF	1300	0	0	400	900
205	Reinforced Concrete Column	EA	12	2	2	8	0
1080	Delamination/Spall/Patched Area	EA	8	0	0	8	0
1130	Cracking (RC and Other)	EA	2	0	2	0	0
215	Reinforced Concrete Abutment	LF	96	20	38	26	12
1080	Delamination/Spall/Patched Area	LF	20	0	0	8	12
1120	Efflorescence/Rust Staining	LF	32	0	20	12	0
1130	Cracking (RC and Other)	LF	24	0	18	6	0
234	Reinforced Concrete Pier Cap	LF	147	100	0	40	7
1080	Delamination/Spall/Patched Area	LF	42	0	0	35	7
1120	Efflorescence/Rust Staining	LF	5	0	0	5	0
301	Pourable Joint Seal	LF	43	28	15	0	0
2340	Seal Cracking	LF	15	0	15	0	0
305	Assembly Joint without Seal	LF	86	0	56	6	24
2330	Seal Damage	LF	6	0	0	6	0
2360	Adjacent Deck or Header	LF	56	0	56	0	0
2370	Metal Deterioration or Damage	LF	24	0	0	0	24
311	Movable Bearing	EA	28	7	5	16	0
1000	Corrosion	EA	19	0	5	14	0
2240	Loss of Bearing Area	EA	2	0	0	2	0

ELEMENTS	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
313	Fixed Bearing	EA	14	0	0	14	0
1000	Corrosion	EA	14	0	0	14	0
330	Metal Bridge Railing	LF	404	202	202	0	0
7000	Damage	LF	202	0	202	0	0
800	Reinforced Concrete Wing/Retaining Wall	EA	4	0	4	0	0
1120	Efflorescence/Rust Staining	EA	4	0	4	0	0
804	Concrete Fascia	LF	404	124	145	120	15
1080	Delamination/Spall/Patched Area	LF	105	0	0	90	15
1120	Efflorescence/Rust Staining	LF	115	0	100	15	0
1130	Cracking (RC and Other)	LF	60	0	45	15	0



Southern Approach



Western Elevation



Pier #2 Span #3



Span #4 Bay #6



Span #4 Bay #3-4-5



Span #4 Bay #1-2-3



Eastern Fascia



Northeast Corner



Beam #7 at Abutment #2



Beam #1 at Abutment #2



Western Beam / Fascia from Span #4



Abutment #2 from West Side



Pier #3 Span #4



Western Fascia at Midspan



West fascia facing south



Northwest Corner



Northern Approach



Wearing Surface from North End



Asphaltic Plug Joint over Abutment #2



Asphaltic Plug Joint over Pier #2



Western Curb



Southwest Corner of Joint over Abutment #1



Western Curb



Eastern Curb



Steel Finger Plate Joint over Abutment #1



Wearing Surface from South End



Western Fascia from South End



Southwest Corner



Steel Finger Plates at Abutment #1



Bearings at Abutment #1



Pier #1 Span #1



Abutment #1



Span #1 Deck



Span #2 Deck Facing North



Pier #2 Span #2 and Timber Blocking



Span #3 Bay #5



Pier #3 Columns #1-2-3-4



Span #3 Bay #2-3



Pier #2 Columns #3-4



Pier #2 Columns #1 and #2



Pier #2 Column #1 and Support Beam for Beam #1 in Span #3



Pier #2 Bay #1 Timber Blocking



Pier #2 Beam #1



Pier #2 Beam #1 Section Loss



Pier #2 Beam #1



Pier #2 Beams #1 in Spans #2 and #3



Pier #2 Beam #1 in Span #3 Bracing



Pier #2 Bearings



Pier #2 Bearings #2



Span #3 Deck Bays #4-5-6 from South End



Span #3 Deck Bays #1-2-3 from South End



Span #2 Deck from North



Pier #3 Span #2



Pier #1 Span #2



Eastern Fascia



Eastern Elevation

Maintenance Needs

Date Reported: 05/25/2022
Priority: 4 - Maintenance Finding - Next Inspection Cycle
Type of Work: 3 - General - Replacement project
Status: Open
Component: General

Deficiency Description

Structure is in need of a major rehabilitation project or replacement in the near future due to progressive deterioration from continuous leakage and wearing. Deck continues to deteriorate and is littered with previous patches with some being unsound and newly forming delaminations and spalls that have exposed the steel reinforcing. Highly probably full depth hole is present in span #2 in bay #4 that has deep spalling that is starting to penetrate concrete above steel reinforcing. Asphalt over structure has large areas of patches scattered throughout the top surface and surround joint areas. Heavy concrete scaling is present along eastern fascia in span #2 but is not limited to and needs to be cleaned and patched or have catch forms installed over US-5 travel lanes to prevent falling debris. Beam #1 in span #3 should be plated or be fully replaced due to large perforation along the lower portion with measurable section loss. Beam ends at abutments and at pier #2 have protective layer failure from continuous joint leakage which has allowed for progressive corrosion and are in need or repairs. Joints still allow heavy leakage to structure below and should be replaced. Heavy spalling / scaling and delaminations with rust staining are present over pier #2 along the cap and are in need of repairs. Abutment #2 stem /bridge seat also have deep spalling that has exposed the steel reinforcing and are starting to undermine both exterior bearings (bearings #1 and #7) and should be cleaned and patched. Pier columns along pier #2 and #3 have spalling / delaminations and/or cracking along the face of columns that coincide with direction of traffic flow. Snow fence has heavy corrosion around connections with a few sections of fence being loose.

Remarks



Pier #2 Span #3



Beam #7 at Abutment #2



Beam #1 at Abutment #2



Northwest Corner



Span #2 Deck Facing North



Pier #2 Span #2 and Timber Blocking



Pier #2 Beams #1 in Spans #2 and #3

Team Lead: Martin Kelley, **Inspection Date:** 05/25/2022

Date Reported: 05/25/2022
Priority: 4 - Maintenance Finding - Next Inspection Cycle
Type of Work: 1 - General - Maintenance/preservation work
Status: Open
Component: General

Deficiency Description

Severe erosion along northwest end of structure at trough end needs to be filled in

Remarks



Northwest Erosion