

Ohio Bridge Inspection Summary Report

CUY-00002-1441 (1800035)

2: District 16000 - CLEVELAND (CUY county)
 ict
 12
 21: Major Maint A/B 01 - State Highway Agency /
 225 Routine Main A/B 04 - City or Municipal Highway /
 Agency
 221 Inspection A/B 01 - State Highway Agency /
 220: Inv. Location DISTRICT 12

5A: Inventory Route 1 00002
 7: Facility On SR 2
 6: Feature Ints CUY RIVER,RTA,FLATS
 9: Location MAIN AVE. BRIDGE
 Lat, Lon 41.490256 ,-81.711967

Condition	Structure Type
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58: Deck **7 - Good Condition**
 58.01 Wearing Surface 7 - Good (1% distress)
 58.02 Joint 6- Satisfactory (isolated leaking)
59: Superstructure **5 - Fair Condition**
 59.01 Paint & PCS 7 - Good (1-5% corr.)
60: Substructure **6 - Satisfactory Condition**
61: Channel **8**
61.01 Scour **7 - Good**
62: Culverts **N - Not Applicable**
67.01 GA **5**

43: Bridge Type 3 - Steel
 09 - Truss - Deck
 N- Not Applicable
 45: Spans Main / Approach 10 / 30
 107: Deck Type 1 - Concrete Cast-in-Place
 408: Composite Deck N - Non-composite Construction
 414A Joint Type 1 8 - Elastomeric Strip Seal
 414B: Joint Type 2 N - None
 108A: Wearing Surface 3 - Latex Concrete or similar
 additive
 N- Not Applicable

Appraisal	422: WS Date
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Sufficiency Rating 40.2 SD/FO 2 - FO
 36: Rail, Tr, Gd, Term Std 1 1 1 1
 72: Approach Alignment 6 - Equal to present minimum criteria
 113: Scour Critical 8 - Stable for scour conditions
 71: Waterway Adequacy 9 - Bridge Above Flood Water Elevations

422: WS Date 01/01/1992
 423: WS Thick (in) 1.2
 482: Protective Coating 8 - Paint System A with
 intermediate tie coat
 483: PCS Date 01/01/1984
 453: Bearing Type 1 0 - Other
 455: Bearing Type 2 N - None
 528: Foundn: Abut Fwd 4 - Spread Footing (on soil)
 533: Foundn: Abut Rear 4 - Spread Footing (on Soil)
 536: Foundn: Pier 1 2 - Cast-in-Place Reinforced
 Concrete Piles (Other diameter)
 539: Foundn: Pier 2 N - None (Such as most Culverts)

Geometric	422: WS Date
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48: Max Span Length (ft) 400.0
 49: Structure Length (ft) 6580.0
 52: Deck Width, Out-To-Out (ft) 85.5
 424: Deck Area (sf) 562590
 32: Appr Roadway Width (ft) 70.0
 51: Road Width, Curb-Curb (ft) 82.0
 50A: Curb/SW Width: Left (ft) 0
 50A: Curb/SW Width: Right (ft) 0
 34: Skew (deg) 99
 33: Bridge Median 3 - Closed median with non-
 mountable barriers
 54B: Min Vert Underclearance (ft) 14.08
 336A: Min Vert Clrnce IR Cardinal (ft) 99
 336B: Min V Clr IR Non-Cardinal (ft) 0
 578: Culvert Length (ft) 0

Age and Service	422: WS Date
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27: Year Built/ 106 Rehab 1939 / 1992
 42A: Service On 5 - Highway-pedestrian
 42B: Service Under 8 - Highway - waterway -
 railroad
 28A: Lanes on 06
 28B: Lanes Under 04
 19: Bypass Length 2
 29: ADT 37139
 109: % Trucks (%) 3

Load Posting	422: WS Date
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41: Op/Post/Closed A - Open
 70: Posting 5 - Equal to or above legal loads
 70.01: Date
 70.02: Sign Type
 734: Percent Legal (%) 110
 704: Analysis Date 07/01/2012
 63: Analysis Method 6 - Load Factor (LF) rating reported by
 rating factor (RF) method using MS18
 loading.

Inspections	422: WS Date
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		<i>Months</i>	
90: Routine Insp.		12	07/21/2021
92A: FCM Insp.	Y	24	07/25/2019
92B: Dive Insp.	N	0	
92C: Special Insp.	N	0	
92D: UBIT Insp.	Y	12	08/14/2020
92E: Drone Insp.			

Inspector Rufener,Justin

Inspector: Justin Rufener
 Inspection Date: 07/21/2021

Structure Number: 1800035
 Facility Carried: SR 2

Bridge Inspection Report

Element Inspection

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
12 - Reinforced Concrete Deck	3 - Mod.	502787	sq. ft.	487593	15094	100	0
	<p>CS2: In Unit 1 the haunches in the deck above the stringers in these sections have areas of minor spalling. In Unit 1, Section P, the underside of the deck has cracking with efflorescence throughout. Isolated edge delaminations throughout.</p> <p>CS3: The underside of deck exhibits spalling at several joint locations in Unit II. Isolated edge spalls throughout.</p>						
510 - Wearing Surfaces		464586	sq. ft.	430483	33873	230	0
	<p>CS2: Minor abrasion in the wheel path and isolated hairline map cracking. Areas of bituminous patching</p> <p>CS3: Isolated areas of surface abrasion and spalling up to 1" deep. In Unit II, Span 6, there is an area of spalling in the wearing surface in Lane 3 Westbound that appears to be due to a vehicle fire</p>						
107 - Steel Open Girder/Beam	3 - Mod.	8898	ft.	7346	1510	42	0
	<p>CS2: Surface corrosion & minor painted over pitting.</p> <p>CS3: In Unit III over West 9th Street, the south fascia beam is misaligned slightly to the north due to vehicular impact. The East Approach, Unit IV Lakefront Trestle consists of riveted built-up girders with isolated areas of painted over pitting up to 1/8" deep and pack rust along the bottom flange up to 1" thick. The East Approach, Unit V Lakefront Ramp superstructure consists of three riveted built-up plate girders with painted over pitting up to 1/16" deep typical on the girder webs with isolated locations of up to 1/4" deep.</p>						
515 - Steel Protective Coating		58000	sq. ft.	57420	580	0	0
	CS2: Areas of surface dulling						
113 - Steel Stringer	3 - Mod.	62103	ft.	61648	455	0	0
	CS2: Surface corrosion.						
515 - Steel Protective Coating		350000	sq. ft.	349300	700	0	0
	CS2: Areas of surface dulling						
116 - Reinforced Concrete Stringer	3 - Mod.	3611	ft.	3503	72	36	0
	<p>CS2: Hairline cracks with and without efflorescence. Isolated patches and delaminations.</p> <p>CS3: Heavy spalls in Unit Unit I, Section P.</p>						

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Element Inspection

120 - Steel Truss	3 - Mod.	5360	ft.	1978	2150	1178	54
<p>CS2: Surface corrosion & painted over minor pitting.</p> <p>CS3: Minor to moderate section loss, isolated small perforations, pack rust between plates with up to 2" of distortion.</p> <p>CS4: Advanced section loss & corrosion holes at several locations on lower chord.</p>							
515 - Steel Protective Coating		225000	sq. ft.	202400	22500	100	0
<p>CS2: Areas of surface dulling and surface corrosion (substantially effective).</p> <p>CS2: Areas with limited effectiveness.</p>							
152 - Steel Floor Beam	3 - Mod.	23487	ft.	18141	5111	235	0
<p>CS2: Surface Corrosion</p> <p>CS3: Areas of minor to moderate section loss, painted over pitting up to 1/4" deep, reactivated pack rust. Unarrested cracks in top flange copes at truss connections.</p>							
515 - Steel Protective Coating		230000	sq. ft.	227650	2300	50	0
<p>CS2: Areas of surface dulling and surface corrosion (substantially effective).</p> <p>CS2: Areas with limited effectiveness.</p>							
155 - Reinforced Concrete Floor Beam	3 - Mod.	5407	ft.	5353	54	0	0
<p>CS2: Isolated hairline cracks and areas of delamination</p>							
161 - Steel Pin and Pin & Hanger Assembly or both	3 - Mod.	14	each	11	3	0	0
<p>CS2: Minor painted over pitting on pins and adjacent plates. Minor misalignments of plates.</p>							
162 - Steel Gusset Plate	3 - Mod.	548	each	296	140	112	0
<p>CS2: Areas of surface corrosion</p> <p>CS3: Painted over & reactivated pitting up to 1/4" deep. Pack rust along lower chord members.</p>							
202 - Steel Column	3 - Mod.	151	each	120	31	0	0
<p>CS2: Areas of minor section loss</p>							
515 - Steel Protective Coating		26000	sq. ft.	25740	260	0	0
<p>CS2: Areas of surface dulling and surface corrosion (substantially effective).</p>							
205 - Reinforced Concrete Column	3 - Mod.	268	each	213	53	2	0
<p>CS2: Areas of map cracking, patching and delamination</p> <p>CS3: Few locations of spalling and rust staining</p>							

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Bridge Inspection Report

Element Inspection

210 - Reinforced Concrete Pier Wall	3 - Mod.	55	ft.	20	25	10	0
	CS2: Areas of moderate cracking and delamination						
	CS3: Areas of spalling						
215 - Reinforced Concrete Abutment	3 - Mod.	110	ft.	59	51	0	0
	CS2: Minor vertical cracks with efflorescence and staining.						
231 - Steel Pier Cap	3 - Mod.	5426	ft.	5197	209	20	0
	CS2: Minor painted over pitting in Unit V						
	CS3: Moderate painted over pitting and pack rust up to 1" thick in Unit V						
234 - Reinforced Concrete Pier Cap	3 - Mod.	212	ft.	203	9	0	0
	CS2: Areas of delamination						
300 - Strip Seal Expansion Joint	3 - Mod.	1750	ft.	651	869	230	0
	CS2: Isolated areas of leakage. Minor Debris Impaction. Minor section loss to plates.						
	CS3: Areas of significant debris impaction. Seals depressed up to 1". At Joint O on the westbound side of the bridge, the west joint armor in the left lane near the W. 28th Street exit ramp is loose and banging under vehicular impact						
302 - Compression Joint Seal	3 - Mod.	1055	ft.	382	524	139	10
	CS2: Isolated areas of leakage. Minor Debris Impaction. Minor section loss to plates.						
	CS3: Areas of significant debris impaction. Seals depressed up to 1".						
	CS4: At Joint X, there is a 10 foot section of broken compression seal retainer in westbound lane 3, allowing drainage directly through the joint						
303 - Assembly Joint with Seal	3 - Mod.	595	ft.	222	295	78	0
	CS2: Isolated areas of leakage						
	CS3: Areas of tearing seals.						
311 - Movable Bearing	3 - Mod.	103	each	83	14	6	0
	CS2: Surface Corrosion						
	CS3: Painted over pitting up to 3/16" deep and moderate anchor bolt section loss.						
313 - Fixed Bearing	3 - Mod.	100	each	80	14	6	0
	CS2: Surface Corrosion						
	CS3: Minor to moderate section loss.						
321 - Reinforced Concrete Approach Slab	3 - Mod.	6788	sq. ft.	6788	0	0	0

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Bridge Inspection Report

Element Inspection

331 - Reinforced Concrete Bridge Railing	3 - Mod.	20150	ft.	17645	2368	137	0
	CS2: Moderate vertical and horizontal cracking, map cracking, poor & failing patches.						
	CS3: Areas of spalling, some with exposed reinforcing.						
815 - Drainage	3 - Mod.	268	each	171	54	27	16
	CS2: Numerous partially clogged scuppers						
	CS3: Numerous mostly clogged scuppers. Some disconnected or clogged downspouts.						
	CS4: Several fully clogged scuppers						
830 - Abutment Backwall	3 - Mod.	110	ft.	50	60	0	0
	CS2: Minor vertical cracking with staining.						

ODOT District: District 12

CUY-00002-1441_(1800035)

Date Built: 07/01/1939

Major Maint: 01 - State Highway Agency

Facility Carried: SR 2

Traffic On: 5 - Highway-pedestrian

Rehab Date: 07/15/1992

Routine Maint: 04 - City or Municipal Highway Agency

Feature Inters: CUY RIVER,RTA,FLATS

Traffic Under: 8 - Highway - waterway - railroad

Insp. Resp A: 01 - State Highway Agency

FIPS Code: 16000 - CLEVELAND (CUY county)

Location: DISTRICT 12

MAIN AVE. BRIDGE

Insp

Resp B:

Inspector

Rufener,Justin

Inspection Date 07/21/2021

Reviewer Rufener,Justin

Inspector Comments - Deck and Approach

Deck

Element 12 - Reinforced Concrete Deck (SF)

The replacement deck, opened to traffic in 1992, consists of epoxy coated reinforcement with stay-in-place metal galvanized steel forms. In Unit 1, there are several sections that do not have stay-in-place forms, and the underside of the deck is visible. The haunches in the deck above the stringers in these sections have areas of minor spalling. In Unit 1, Section P, the underside of the deck has cracking with efflorescence throughout. Isolated edge delamination and spalls were noted, often adjacent to the expansion joint armor. At some locations these edge spalls have been sealed. Areas of isolated spalling were noted along the gutter line on the eastbound roadway in Unit II, Main Truss spans. The underside of deck exhibits spalling at several joint locations in Unit II. See the inspection report for additional details.

Element 300 - Strip Seal Expansion Joint (LF)

At Joint O on the westbound side of the bridge, the west joint armor in the left lane near the W. 28th Street exit ramp is loose and banging under vehicular impact. The west joint header exhibits spalls on the top of deck at the area of loose joint armor. Throughout the structure, joints have significant debris impaction and corrosion with section loss typically 3/16" deep on the joint plates. Some joints are depressed up to 1" deep. Isolated joints exhibit evidence of leakage. See the inspection report for additional details.

Element 302 - Compression Joint Seal (LF)

At Joint X, there is a 10 foot section of broken compression seal retainer in westbound lane 3, allowing drainage directly through the joint. Throughout the structure, joints have significant debris impaction and corrosion with section loss typically 3/16" deep on the joint plates. Some joints are depressed, up to 1" deep. Isolated joints exhibit evidence of leakage. See the inspection report for additional details.

Element 303 - Assembly Joint with Seal (LF)

At Joint L

between Spans 5 and 6, the joint header on the east side of the joint is delaminated and spalling with loose concrete falling onto the catwalk below. This joint is located over Elm Street in Unit II. There are scattered areas of minor tearing and leaking in the seals. See the inspection report for additional details.

Element 331 - Reinforced Concrete Bridge Railing (LF)

The median and railing constructed during the 1991-1992 rehabilitation were poured using slip form construction. Both the median and the parapets were repaired in the last rehabilitation project between 2017 and 2018. Vertical, horizontal, and map cracking are common throughout the bridge railings. Many of the large spalls facing traffic were patched, however, isolated patches are spalled again. Several spalls exhibit exposed reinforcing steel. Many of the spalls previously

noted on the exterior faces of the parapets have been sealed; however, surface corrosion is reactivating on the exposed reinforcing bars that were sealed, and some of the sealed concrete is delaminating. There are scattered areas with new spalls and delamination of the exterior of the parapets. Spalls exist in the bridge railing at or near the deck joints. There are isolated spalls up to 3" deep in the median. See the inspection report for additional details.

Element 510 - Wearing Surface (SF)

The wearing surface consists of a 1.2" layer of latex modified concrete on top of the reinforced concrete deck. Typical deterioration includes minor wear in the wheel path and isolated minor hairline cracking. There are isolated areas of surface scaling or spalling up to 1" deep (*Photo 510-1*). Some of the scaled/spalled areas are patched with bituminous material. There is spalling up to ½" deep along the joints and areas of vegetation are growing along the curb line. In Unit II, Span 6, there is an area of spalling in the wearing surface in Lane 3 Westbound that appears to be due to a vehicle fire. See the inspection report for additional details.

Element 815 - Drainage (EA)

The scuppers and catch basins along the edge of roadway are partially or fully clogged with debris that is visible from the top of deck. Many of the scupper catch basins, including those inside vaulted areas are fully clogged with dirt, debris and water. In Unit IV, near Bent 15, the scupper catch basing is heavily spalled and the grate has fallen out of place. In Unit II, Span 2, the downspout at the South Truss panel point L6U6 is broken which is allowing water to drain directly onto the superstructure. At the Pier 5 South Column, the bottom angle scupper piece is broken. In Unit II Span 9, the north scupper downspout is disconnected and a portion of the downspout could fall into the river below. See the inspection report for additional details.

Lighting

The deck lighting consists of metal poles with cobra head fixtures. Several pull boxes at the base of the light poles across the structure have either missing or loose covers with exposed wiring. See the inspection report for additional details.

Approach

Element 321 - Approach Slab (SF)

The approach slabs are in Good condition. The asphalt joints at the ends of the west approach slabs have areas of cracking, patching and heaving. See report for detailed locations and descriptions of deficiencies.

Approach Wearing Surface

The approach wearing surfaces are in Fair condition. The West Approach wearing surface exhibits numerous potholes and asphalt patches, especially in the eastbound lanes. Several patched areas exist on the West Approach. There are potholes and asphalt patches in the East Approach wearing surface. See report for detailed locations and descriptions of deficiencies.

Embankment

The approach embankments are in Good condition. There is an 8' long x 4' wide x 2' deep sinkhole near the North column of Bent 30 in Unit IV. The sink hole has grown in size since the 2020 inspection and there are still traffic cones delineating the hole. See report for detailed locations and descriptions of deficiencies.

Guardrail

The approach guardrails are in Satisfactory condition. There are areas of cracking and spalling in the approach concrete barrier. At the westbound exit to W 28th St, the impact attenuator is heavily damaged.

Security Items

The fenced in area under Unit V is accessible due to an open gate on the southeast end of Pier 37. Due to this opening, there is evidence of a homeless encampments within the fenced in area.

Signs

The signs on the structure are in Good condition. In Unit V, there is a missing sign curve warning sign in the Eastbound lanes

Inspector Comments - General Appraisal

Superstructure

Element 107 - Steel Open Girder/Beam

The West Approach, Unit I, Section K / C and N superstructure consists of rolled beams, welded plate girders, and riveted built-up plate girders. Typical conditions found include areas of minor corrosion and broken rivets.

In Unit III over West 9th Street, the south fascia beam is misaligned slightly to the north due to vehicular impact. There are also impact scrapes visible on the recently painted bottom flange. Beam FSS was previously heat straightened and nearly returned to its original alignment. Measured minimum clearance at this beam is 13'-6" (posting) feet along the right curb.

The East Approach, Unit IV Lakefront Trestle consists of riveted built-up girders with isolated areas of painted over pitting up to 1/8" deep and pack rust along the bottom flange up to 1" thick. There are cutouts in the girder webs up to 11.5" L x 10" H in various locations throughout Unit IV. These cutouts are present for drainage troughs that were removed in 1991.

The East Approach, Unit V Lakefront Ramp superstructure consists of three riveted built-up plate girders with painted over pitting up to 1/16" deep typical on the girder webs with isolated locations of up to 1/4" deep. At several locations the bottom flange plates are distorted due to sealed pack rust.

See the inspection report for additional details.

Element 113 - Steel Stringers (LF)

The steel stringers across the structure were replaced in the 1991-1992 deck replacement project. The stringers on the approaches were all repainted in the recent rehabilitation project. Typical conditions found are isolated freckled corrosion across the structure. See the inspection report for additional details.

Element 116 - Reinforced Concrete Stringers (LF)

The reinforced concrete stringers in West Approach Sections D, M, J', P, and B' are in overall Satisfactory condition. There are hairline cracks with and without efflorescence throughout the concrete stringers. There are isolated patches throughout the stringers with some areas of unconsolidated concrete and delaminations. The stringers in Section P are in fair to poor condition. There are spalls and delaminated areas up to 12' long x 4' high and isolated spalls up to 3" deep in stringers in Section P. See the inspection report for additional details.

Element 120 - Steel Truss (LF)

Overall, the truss members are in Fair condition with typical areas of painted over minor section loss, pitting, reactivated pack rust, distortion due to pack rust, and surface corrosion throughout all truss members. A summary of defects on each truss member type is listed below.

The truss verticals exhibit varying section loss due to pack rust between the gusset

plates, fill plates, cover plates, and vertical flanges.

The truss

diagonals exhibit section loss with pitting typical in the top face of the web plates of the rolled sections and pack rust induced distortion along the flanges and connection fill plates. There are locations where section loss in the web was repaired with bolted repair plates.

The truss

upper chord exhibits areas of painted over section loss, pitting, and pack rust induced distortion.

There are isolated areas of reactivating corrosion near the joints.

The lower

chord exhibits more numerous deficiencies across the structure. Section loss is affecting up to approximate 25% of the total calculated length of the lower chord members. These areas include section loss due to previously noted and reactivated areas of pack rust and pitting. There are previously caulked areas of pack rust at the lower chord to gusset plate interfaces that are cracked and no longer effective. There are numerous locations noted of pack rust, both sealed and reactivated, located between the flange angles and the web plates that are distorting the web plates up to 2" high. Isolated perforations are also noted along the top and bottom flange plates. The Unit II lower chord (Span 8, L2425) at the South Truss, has a full length retrofit around the original steel member. There is minor surface corrosion on the retrofit bolt heads at this location.

The lower

lateral bracing and sway exhibits areas of pack rust and pitting, with areas of painted over corrosion holes.

Isolated locations exhibit missing rivets and broken and painted over section loss on the rivet heads. The connection plates have areas of significant section loss with isolated corrosion holes typical.

See the inspection report for additional details.

Element 152 - Steel Floorbeam (LF)

The

floorbeams were recently repainted in Unit I, Unit III, Unit IV, and Unit V. Typical conditions found in those areas include areas of painted over pitting up to 1/4" deep and reactivated areas of pack rust and freckled surface corrosion. Behind some of the removed stringer connections, there are painted over corrosion holes in the webs. Weld remnants and

random attachments remain on the floorbeams from previous drainage assemblies.

In the Unit II main truss spans, areas of painted over pitting were found along the bottom of top flange tension tie plates connecting the center floor beam section and the floor beam cantilever brackets. In Unit II, there are cracks present in the floorbeam webs at the top flange cope, adjacent to the truss lines. There are several new crack locations that were not previously noted, and several of the previously noted cracks have grown since the 2020 inspection. See the inspection report for additional details.

Element 155 - Reinforced Concrete Floorbeam (LF)

There are reinforced concrete floorbeams in the West Approach, Unit I, Section J, B', M, D and P. In Section P, there are isolated hairline cracks and areas of delamination throughout the floorbeams, and several locations of spalling with exposed reinforcing. See the inspection report for additional details.

Element 161 - Steel Pin and Pin & Hanger Assembly (EA)

The pins, hangers, and hinges are in **Good condition**. In Unit II, the pins exhibit painted over pitting with some active corrosion due to deck joint leakage. In Span 9, South Truss at L0L1 the inboard and outboard oval pin plates have rotated. The pin plates are rotated to the point where they are in contact with gusset stiffening channels on both the inboard and outboard gusset. The channel flange/rivets are beginning to push the edge of the pin plate outward.

In the Unit IV, there are pin and hanger locations where rivet heads on the girders interfere with hangers. Evidence of movement of the pin and hanger was noted due to cracked paint between the hangers and the beam webs. Isolated pins exhibit painted over pitting less than 1/8" D.

See the inspection report for additional details.

Element 162 - Steel Gusset Plate (EA)

The truss gusset plates typically exhibit painted over pitting up to 1/4" deep. There are several locations of reactivating pitting throughout the Main Truss spans. There is pack rust between various truss members and gusset plates at both the upper and lower chords. Fill plates across the structure typically exhibit painted over section loss with up to 100% section loss in isolated locations outside of the gusset plates. See report for detailed locations and descriptions of deficiencies.

Element 311 - Moveable Bearings (EA)

The moveable bearings in Unit II exhibit moderate surface corrosion throughout the bearing components. Several bearings in Unit II have standing water and debris accumulation in the bearing assembly. The moveable bearings in Unit III were cleaned and in the latest rehabilitation project. Typical conditions found are painted over section loss up to 3/16" deep throughout the lower portion of the columns and cleaned and caulked areas of pack rust. The anchor bolts at the base of Bents 1 through 10 exhibit moderate painted over section loss. Masonry plates typically exhibit painted over pitting up to 3/16" deep. In Unit V the moveable bearings have widespread painted over pitting. See report for detailed locations and descriptions of deficiencies.

Element 315 - Fixed Bearings (EA)

The fixed bearings in Unit II exhibit moderate corrosion and section loss throughout the bearing components. Several bearings in Unit

II have standing water and debris accumulation in the bearing assembly. See report for detailed locations and descriptions of deficiencies.

Element 515 - Steel Protective Coating System (SF)

The PCS in the Main Truss Spans was applied in 2007. The PCS in the West Approach, Forward Section, Lakefront Trestle, and Lakefront Ramp was applied in 2017 and 2018 and is in very good condition. The paint system in Unit II typically exhibits fading and reactivating corrosion throughout with isolated locations of moderate active corrosion. See report for detailed locations and descriptions of deficiencies.

Superstructure Alignment

In Unit II, there are several pin locations along the upper chord and lower chord where the trusses are not aligned along a linear plane. This is due to an intentional change in alignment of the structure. These locations should continue to be monitored. In Unit III, between Bent 11 and Bent 12, the southern fascia beam over West 9th Street is misaligned due to numerous hits from vehicles travelling northbound. Beam FSS was previously heat straightened and nearly returned to its original alignment. Measured minimum clearance at this beam is 13'-6" (posting) feet along the right curb. In Unit III, between Bent 8 and 9, the south diagonal is bent upward and to the South due to vehicular impact. The member has not been braced or straightened. In Unit IV, Section E at Bent 26, the north girder bottom flange on the north side is bent at Joint B4 and the pin nuts shown evidence of movement. Continue to monitor this location. Historic remarks: Isolated stringer sliding bearings exhibit minor vertical misalignment at the bearing interface in the East Approach Trestle Section.

Fatigue Prone Details

No fatigue distress was noted at locations of tack welds and welded cover plates in the West Approach and Trestle Sections. Previous cracks (not necessarily fatigue related) have been drilled and do not exhibit additional growth. Unit IV, Lakefront Trestle, Bents 14 and 15, Section A, an obsolete utility bracket is welded to the south twin girder. The top flange weld on the field splice of Girder GF2 has a deep crevice between adjacent weld passes. Both of these welded connections represent stress risers and potential fatigue prone details. See report for detailed locations and descriptions of deficiencies.

Substructure

Element 202 - Steel Column (EA)

The steel bents in Unit I, Unit III and Unit IV exhibit areas of painted over pitting up to 3/16" D and isolated painted over corrosion holes. There are areas of painted over pack rust up to 1/4" thick between plates. The anchor bolts nuts exhibit up to 40% painted over section loss. Anchor bolts have painted over section loss up to 75%. The reinforced concrete bases exhibit isolated spalls up to 4" deep. See report for detailed locations and descriptions of deficiencies.

Element 205 - Reinforced Concrete Columns (EA)

In Unit I, Section M and D, the reinforced concrete columns are generally in good condition with one isolated column with significant spalling. In Unit I, Section P, several of the columns have areas of delamination. The columns in Unit II typically have areas of cracking with rust staining and some areas of delamination. See report for detailed locations and descriptions of deficiencies.

Element 510 - Reinforced Concrete Pier Wall (LF)

The reinforced concrete pier walls are in Good condition. Pier 37 between Units IV and V has several areas of delamination, spalling and cracking, especially on the bearing pedestals. See report for detailed locations and descriptions of deficiencies.

Element 215 - Reinforced Concrete Abutment (LF)

The abutments are in Good condition. There are isolated areas of hairline vertical cracking with isolated areas of efflorescence and water staining. In Unit V, the East Abutment exhibits areas of patched concrete. See report for detailed locations and descriptions of deficiencies.

Element 231 - Steel Pier Caps (LF)

The pier caps are in Good condition. The steel pier caps at Pier 38, 39 & 40 in Unit V exhibit painted over pitting and pack rust up to 1" thick. See report for detailed locations and descriptions of deficiencies.

Element 234 - Reinforced Concrete Pier Caps (LF)

The Pier caps are in Good condition. In Unit I, there are areas of delaminations in the underside of Pier O in Section P near the middle of the cap. The Pier 12 cap in Section M exhibits a spall with exposed reinforcing steel. In Unit II, Pier 10 Cap exhibits a patched and fiber wrapped area on the underside of the cap. See report for detailed locations and descriptions of deficiencies.

Element 830 - Abutment Backwalls (LF)

The backwalls are in Good condition. Minor vertical cracking and staining are present on the East Abutment backwall. See report for detailed locations and descriptions of deficiencies.

Wingwalls

The wingwalls are in Good condition.

Mask Walls

In Unit I, there are mask walls in each section except for B and J where the roadway is built on fill. The mask walls have significant areas of spalling, delaminations, and cracking on the inside and outside faces of the walls. Several spalls exhibit exposed reinforcing steel with significant section loss. In Section C & K, some of the delaminations are above pedestrian walkways.

In Unit III, there are mask walls at the north and south chambers east of West 9th Street. The inside faces of the walls have significant areas of spalling, delaminations and cracking. Several spalls have exposed rebar with up to 100% section loss.

See report for detailed locations and descriptions of deficiencies.

Substructure Scour

Sea walls are present along both riverbanks, providing protection for Pier 8 and 9.

Culvert

Inspector Comments - Waterway

Waterway Adequacy

Channel

Channel Allignment

The alignment is in Good condition.

Channel Protection

The channel protection is in Good condition. Historic Remark: Isolated erosion holes exist in the area between Pier 9 and the river wall.

Channel Hydraulic Opening

The hydraulic opening is in Good condition. The hydraulic opening is sufficient.

Channel Navigation Lights

The navigation lights are in Good condition.

Scour Critical