Bridge Inspection Report

056B00250N
Inspector: Darren Stewart
Entered by: DSTEWART
01/13/2021
Standard (24 months)

IDENTIFICATION

Structure Num (8):	056B00250N
NBI Number:	056B00250N
Structure Name:	_
Location (9):	0.4 MI W OF RALPH AVE
Carries (7):	I-264
Type of Service (42A):	1 Highway
Feature Crossed (6):	P&L RAILWAY
Type of Service (42B):	2 Railroad
Placecode (4):	Not Applicable
County (3):	Jefferson (056)
State (1):	21 Kentucky
Admin Area:	Inventory
District:	District 5
Latitude (16):	38° 12' 49"
Longitude (17):	85° 49' 23"
Owner (22):	State Highway Agency
Maint. Resp. (21):	State Highway Agency
Year Built (27):	1970
Year Recon (106):	2003
Border State (98A):	Not Applicable (P)
Border Number (99):	
% Responsibility (98B):	-1

Poor **Heath Index:** 85.65

SubStd: No **SubStd Reason:** Not Sub-Standa

Inspection Type	Freq (92)	Last Insp (93)	Next Insp
Routine	24	1/13/2021	1/13/2023
Element	24	1/13/2021	1/13/2023
Fracture Critical (A)		1/1/1901	1/1/1901
Underwater (B)		1/1/1901	1/1/1901
Special Insp (C)		8/11/2020	1/1/1901

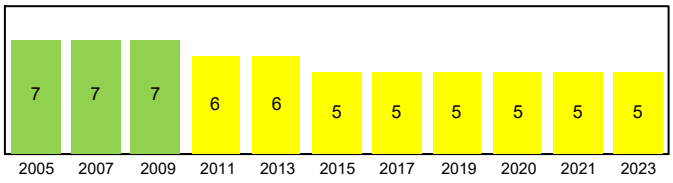
LOAD RATING AND POSTING

Posting Status(41):	A Open, no restriction
Posting (70):	5 At/Above Legal Loads
Signs Posted Cardinal:	No
Signs Posted Non-Cardinal:	No
Recmd Date:	**Posted Date:**

Required Postings (Tons.)		Field Postings (Tons.)	
Gross:		**Gross:**	
Truck Type 1:		**Truck Type 1**	
Truck Type 2:		**Truck Type 2**	
Truck Type 3:		**Truck Type 3**	
Truck Type 4:		**Truck Type 4**	
SUV 5:		**SUV 5:**	
SUV 6:		**SUV 6:**	
SUV 7:		**SUV 7:**	
EV Single Axle:		**EV Gross:**	
EV Tadem Axle:			

DECK GEOMETRY

Deck Geometry (68):	9 Above Desirable Crit
Deck Area:	45,562.00 ft²
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
Approach Roadway width (32):	105.50 ft.
Width Curb to Curb (51):	105.50 ft.
O. to O. Width (52):	111.10 ft.
Curb / Sidewalk Width L (50A):	0.00 ft.
Curb / Sidewalk Width R (50B):	0.00 ft.
Median (33):	3 Closed Med w/Barriers

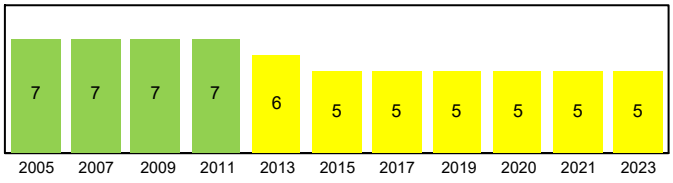


DECK CONDITION

Deck Rating (58):	5 Fair
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):	7
# of Approach Spans (46):	0
Main Material (43 A):	2 Concrete Continuous
Main Design (43 B):	04 Tee Beam
Max Span Length (48):	85.00 ft.
Structure Length (49):	410.10 ft.
NBIS Length (37):	Long Enough
Temp Structure (103):	Not Applicable (P)
Skew (34):	99°
Structure Flared (35):	0 No flare
Parallel Structure (101):	No || bridge exists
Approach Alignment (72):	8 Equal Desirable Crit

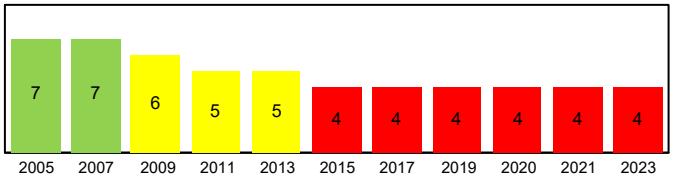


SUPERSTRUCTURE CONDITION

Superstructure Rating (59):	5 Fair
Structure Evaluation (67):	4 Minimum Tolerable

SUBSTRUCTURE GEOMETRY

Navigation Control (38): NA-no waterway
Nav Vert Clearance (39):
Nav Horiz Clearance (40):
Pier Protection (111): Not Applicable (P)
Lift Bridge Vertical Clearance (116):
Scour Rating (113): N Not Over Waterway
Waterway Adequacy (71): N Not applicable



SUBSTRUCTURE CONDITION

Substructure Rating (60): 4 Poor
Channel Rating (61): N N/A (NBI)

KYTC FIELDS

Overlay: No
Overlay Type: None
Overlay Thickness:
Overlay Year:
Cross Section: Not Required
Cross Section Date:

Scour Observed: N/A
Scour Risk : N/A
Scour Analysis/Assessment : Not Required
Scour POA : Not Required
Scour POA Date :
Next Cross Section Due Date :

1ST NON-CARD ROUTE ON: I-264 NC

ROADWAY LOCATION

Pos Prefix (5A): 1st Non-Card Route
Kind of Hwy (5B): 1 Interstate Hwy
Route Num (5D): 00264
LRS Route (13A/B): IO0264_000/00
Milepost (11): 4.65 mi
Suffix (5E): 0 N/A (NBI)
Lanes Under (28B): 6
Detour Length (19):

ROADWAY CLASSIFICATION

Funct Class (26): 11 Urban Interstate
Level Service (5C): 1 Mainline
NHS (104): 1 On the NHS
Defense Hwy (100): 1 On Interstate STRAHNET
Toll Facility (20): 3 On free road
ADT (29): 59,068 Cars/Day
Pct Trucks (109): 10.00%
ADT Year (30): 2021

CLEARANCES

Vertical (10): 99.99 ft.
Min Vert Over (53): 99.99 ft.
Vert Ref (54A): R Railroad beneath struc
Undrclearnce (54B): 23.42 ft.
Horizontal (47): 52.67 ft.
Min Lat Left (56): 0.00 ft.
Min Lat Right (55B): 10.60 ft.
Horiz Ref (55A): R Railroad beneath struc
Underclearance (69): 4 Tolerable

ROUTE ON STRUCTURE: I-264

ROADWAY LOCATION

Pos Prefix (5A): Route On Structure
Kind of Hwy (5B): 1 Interstate Hwy
Route Num (5D): 00264
LRS Route (13A/B): IO0264_000/00
Milepost (11): 4.64 mi
Suffix (5E): 0 N/A (NBI)
Lanes On (28A): 6
Detour Length (19): 0.65 mi

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Underclearance (69): 4 Tolerable

STRUCTURE NOTES

-In 2003, rehab included a 10" concrete deck-over with epoxy reinforcement, compression joint seals, 3) barrier walls, 4) elastomeric bearing pads, and 5) built up pedestals to accommodate new bearings.
-During the 2020 NBI submittal, it was decided to code the 10" concrete deck as Element 12 instead of 38 due to an error with the FHWA error check. EDV 8/11/2020

INSPECTION NOTES

-Routine inspection performed by Darren F. Stewart, Stephanie A. Stoops & Marcella R. Kennedy 01/13/2021.

SCOUR NOTES

LOAD RATING NOTES

8/26/13 Controlling member for the load rating is any interior beam in the continuous spans for Inventory and Operating and Type 4 at 1.4 (26.1167ft from the beginning of span 1). Controlling member for Types 1-3 is Girder 12 in Span 4 and the critical point is 1.5 (midspan). DGA
7/26/21 Controlling member is the 45.172ft beam in span 4, interior beam in the continuous span for Type 4. All beams with 10 inch concrete overlay and no FWS, DN 25388. DGA
10/31/22 Considered shear. DGA

COMPLIANCE NOTES

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
12	Re Concrete Deck	3	01/13/2021	45,556.00	sq.ft	21,952.00	684.00	22,920.00	0.00

In 2003, original deck was scarified and a new 10 inch deck with epoxy coated reinforcement was poured on top. Deck over has widespread dense map cracking, some with wide separation. Heavier amounts noted through all but Span 4 of EBL, with similar cracking found the full length of WBL and affecting full lane widths in both directions. There is a fire damaged area of approximately 27 feet X 10 feet in Span 2, near the south barrier wall, that affects mostly the emergency lane and a small portion of the travel lane.

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
16	Re Conc Top Flange	3	01/13/2021	45,556.00	sq.ft	44,865.00	680.00	11.00	0.00

Top surface cannot be inspected due to 2003 deck over. Top flange soffit has transverse cracking with efflorescence in Span 5 along WB half and in Span 6 along EB and WB, and a few other localized areas. North overhang has deep spalling with exposed rebar over Pier 5, and there are a few other spalls scattered throughout, some with exposed steel reinforcement.

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
110	Re Conc Opn Girder/Beam	3	01/13/2021	5,741.00	ft	5,673.00	13.00	55.00	0.00

Girders have delaminated areas and spalling with exposed steel reinforcement scattered throughout (worst case at Span 3-Girder 10 at Pier 3). Girders 9 and 12 have 3 feet of wide longitudinal cracking and delaminated areas near Abutment 1 bearing, while Girder 10 at Abutment 1 is now spalled with exposed steel reinforcement. Wide vertical cracking noted in exterior web of Girder 14 at Pier 2 and Pier 3.

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
205	Re Conc Column	3	01/13/2021	44.00	each	22.00	5.00	17.00	0.00

Columns have wide vertical cracking (up to 5/8 inch wide), delaminated areas, unsound patches, large spalls, and/or exposed steel reinforcement. Pier 5-Column 2 has two full-height, wide vertical cracks; one of which is along a line of epoxy injection completed during 2003 rehab project. There are voids and concrete is unsound for this repair.

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
215	Re Conc Abutment	3	01/13/2021	250.00	ft	110.00	126.00	14.00	0.00

All bearing pedestals have had concrete repairs, some are cracking. Abutments have moderate to wide vertical cracking, delaminated areas, and a few spalls greater than 6 inches wide with exposed steel reinforcement, some with section loss at Abutment 1 near the south end.

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
234	Re Conc Pier Cap	3	01/13/2021	665.00	ft	326.00	137.00	202.00	0.00

All bearing pedestals have had concrete repairs, some are cracking. Pier caps have moderate to wide cracking, delaminated areas, and large spalls (at least 3 inches deep in some areas) with exposed steel reinforcement and section loss (worst at Piers 2, 3, and 5)

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
301	Pourable Joint Seal	3	01/13/2021	265.00	ft	0.00	212.00	53.00	0.00

Relief cuts over Piers 2-4 EBL and Piers 2-3 WBL have what appears to be a pourable sealant material across 53 feet of the deck at each pier.
Edge failure noted along each location with approximately 40 feet affected by sealant failure in EBL and 13 feet in WBL.

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
302	Compressn Joint Seal	3	01/13/2021	360.00	ft	0.00	90.00	190.00	80.00

Compression joint seals have majority of length affected by adhesion failure at the EB Abutment 1 and Pier 5 joints. Partial adhesion loss in a portion of WB Pier 5 and full length along Abutment 8 joints. All joints have debris in both shoulders, and WB Pier 5 joint has debris throughout.

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
310	Elastomeric Bearing	3	01/13/2021	154.00	each	0.00	154.00	0.00	0.00

Bearing assemblies have freckling rust. At Abutment 8, anchor bolts at Girders 1, 8, 10, and 11 appear to have been installed out of vertical plumb. Elastomeric pads for all girders except Girder 12 show no signs of eastward expansion (32 degrees at time of inspection). Beam 5 at Abutment 8 has a missing nut on anchor bolt.

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
331	Re Conc Bridge Railing	3	01/13/2021	1,640.00	ft	1,261.00	350.00	29.00	0.00

Barrier walls have moderate to wide vertical cracks, some with efflorescence, and horizontal cracking in WB median rail. South railing has roughly 27 feet of heavy scaling from collision and fire damage in Span 2, and two wide cracks.

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
850	2nd Elem	3	01/13/2021	1.00	(EA)	0.00	0.00	1.00	0.00

Diaphragms have cracking and spalling, some areas with exposed steel reinforcement.

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
851	Transitions	3	01/13/2021	1.00	(EA)	0.00	0.00	1.00	0.00

Abutment 1 WBL transition repair (concrete repairs to approach roadway) left the fast lane with transition unchanged (approximately 3/4")

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
859	Vegetation	3	01/13/2021	1.00	(EA)	0.00	0.00	1.00	0.00

Cut brush is piled at the south side of Spans 4 and 5, restricting inspection in these areas.

056B00250N Routine Inspection 01/13/2021

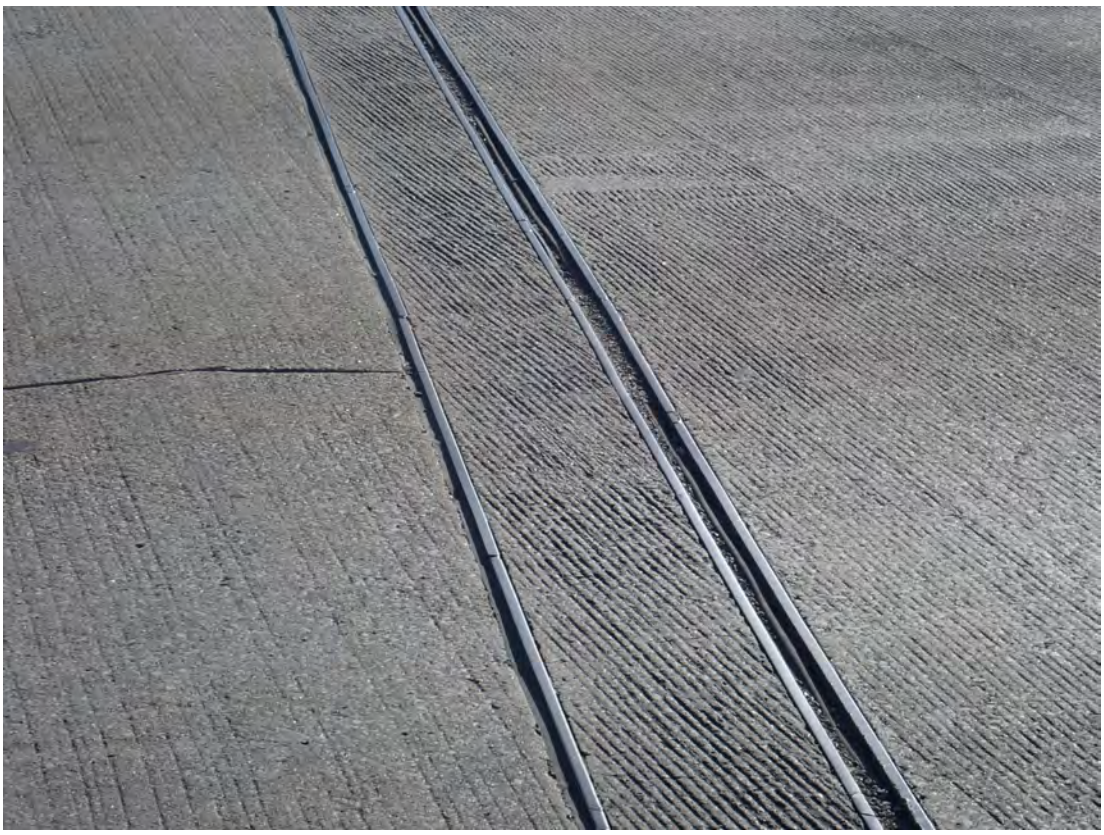
North Profile

South Profile

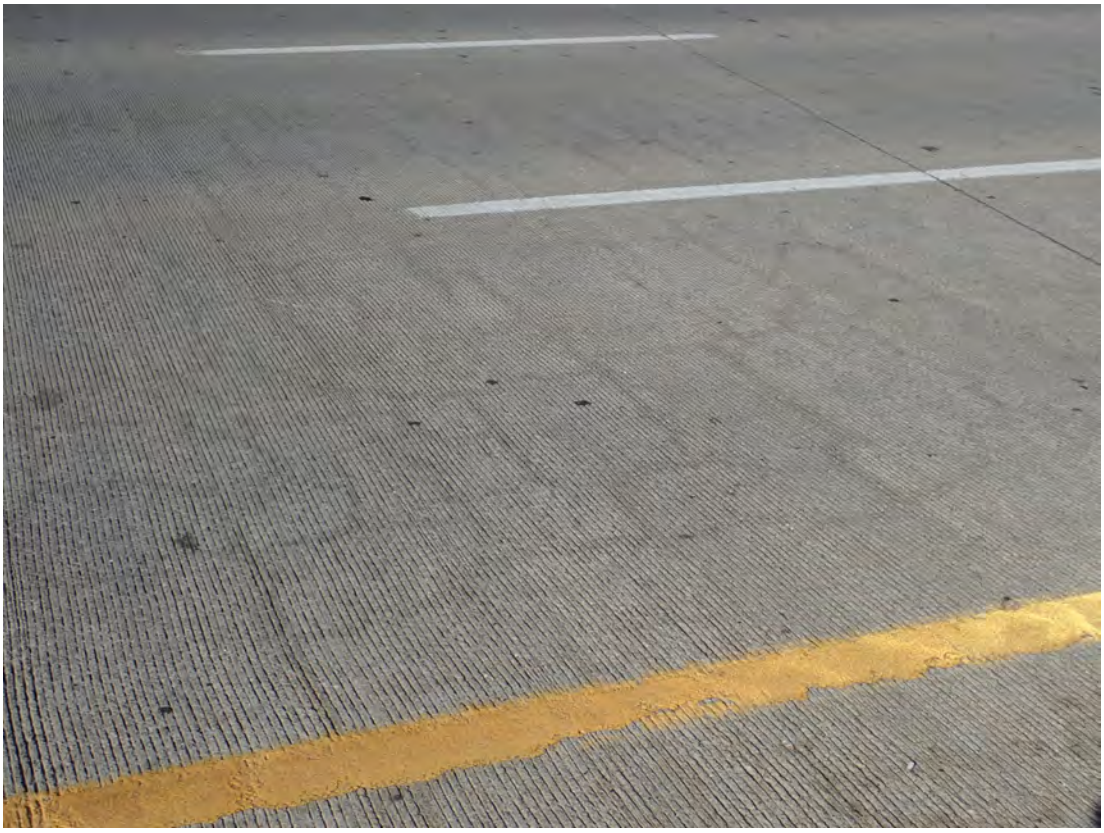
Looking north at P&L Railway

Looking east along I-264 EB toward Cane Run Road/KY 1934 over P&L Railway

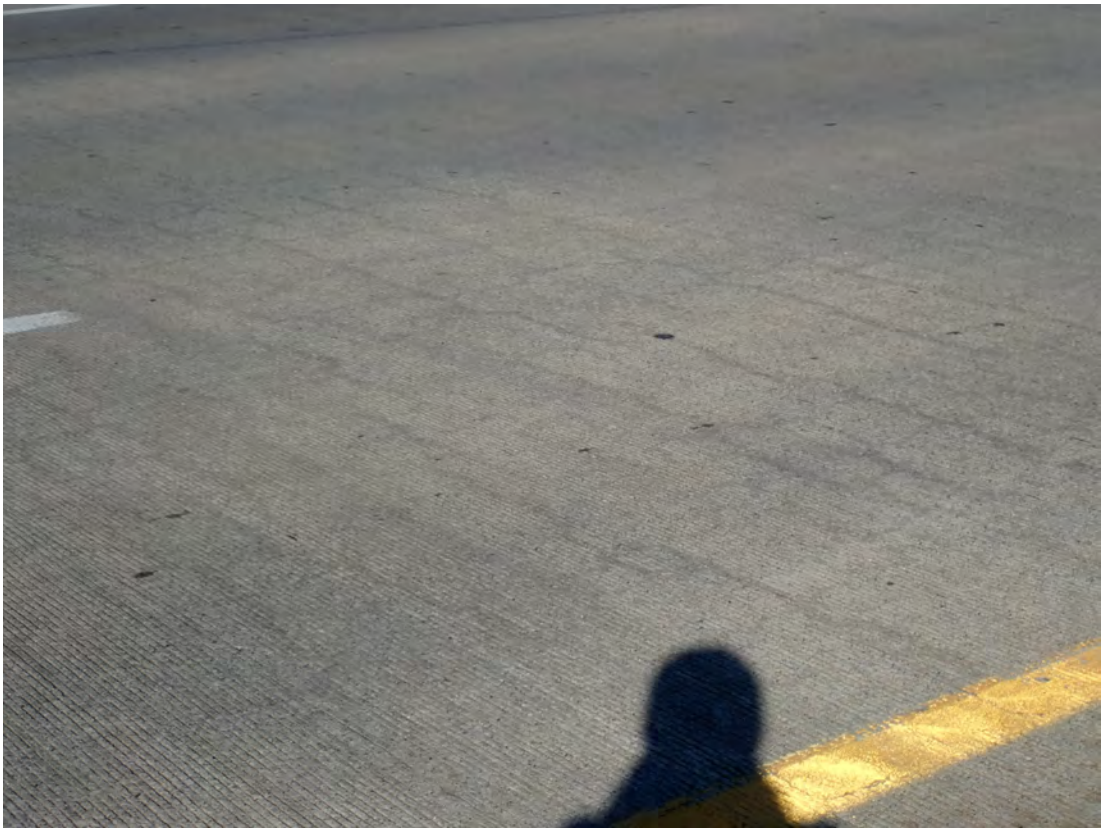
Compression joint seal over Abutment 1 EBL



Closeup of compression joint seal over Abutment 1 EBL



Map cracking noted in deck over Span 1



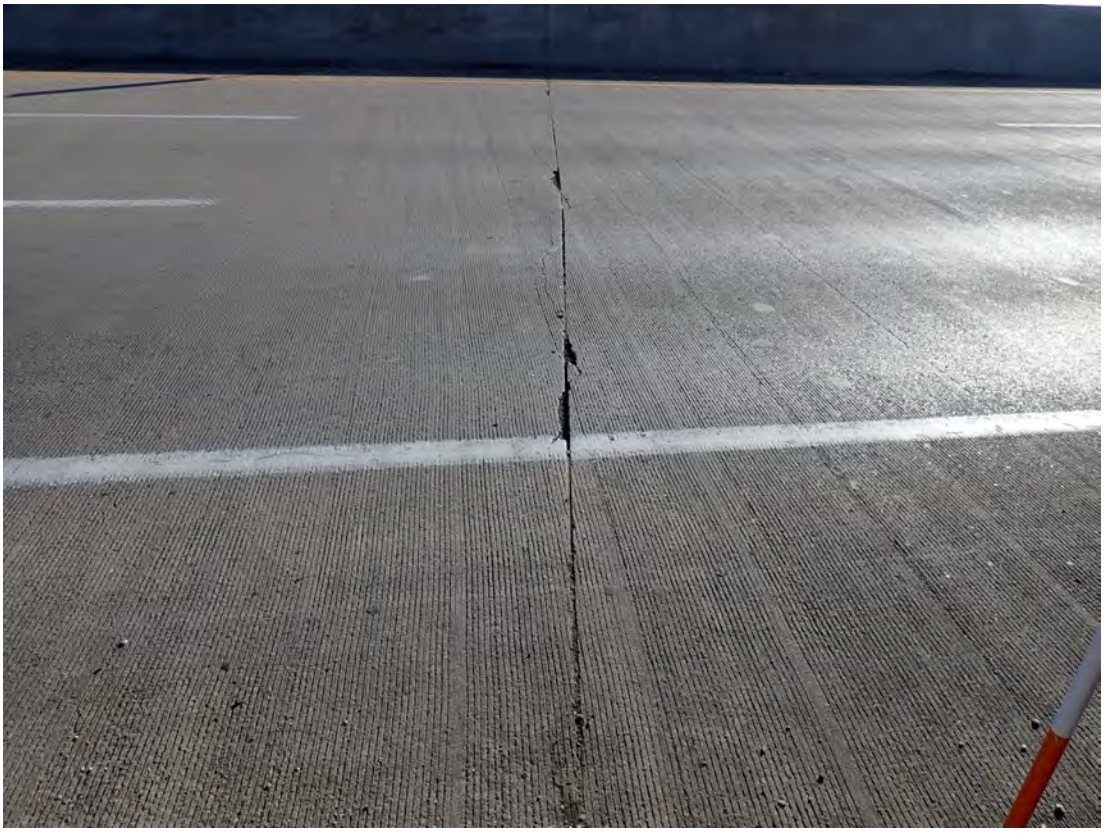
Another location of map cracking noted in deck over Span 1

Closer view of dense map cracking in Span 1 -- heavier amounts typical of all but Span 4 EBL; affects full length of WBL & full lane widths in each direction of travel

Relief cut over Pier 2 EBL with what appears to be a pourable sealant material across 53 feet of the deck with edge failure at random locations along length of joint. 16 feet affected by sealant failure

Fire damage along the south barrier wall of EBL in Span 2

Map cracking typical of that found in deck over Span 2

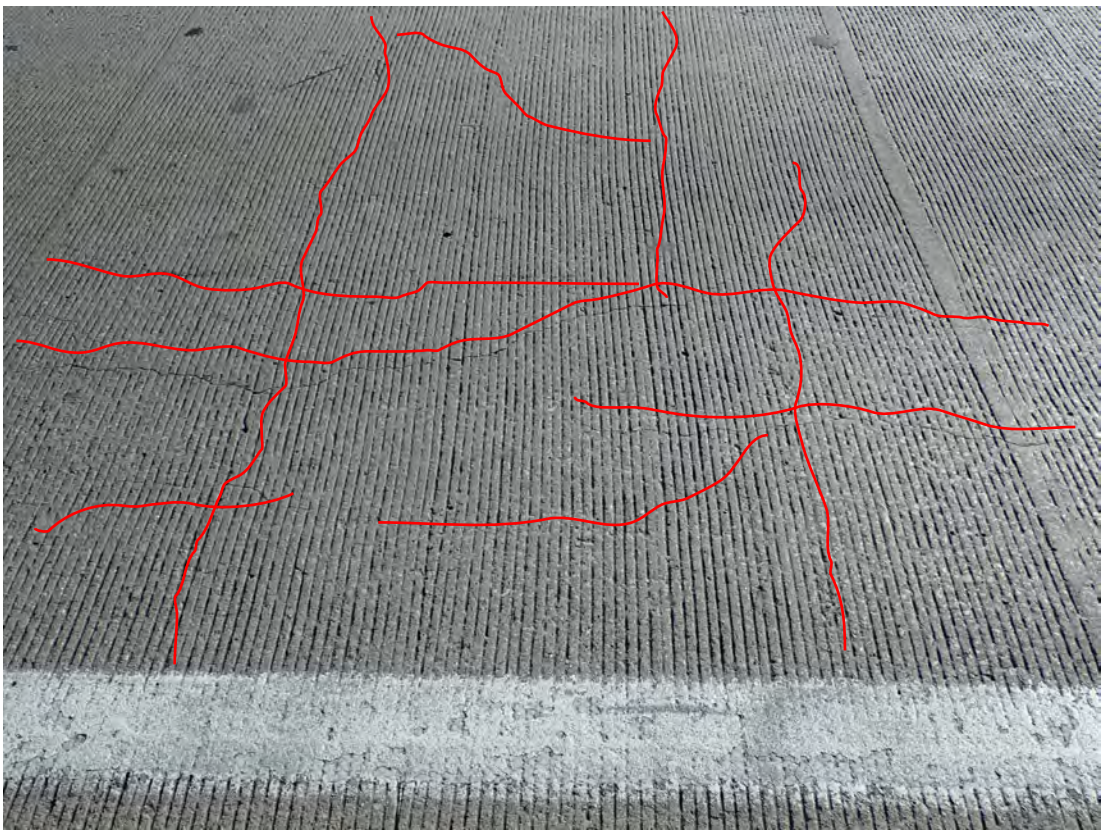


Relief cut over Pier 3 EBL with what appears to be a pourable sealant material across 53 feet of the deck with edge failure at random locations along length of joint. 14 feet affected by sealant failure

Closer view of edge failure over Pier 3 EBL

Relief cut over Pier 4 EBL with what appears to be a pourable sealant material across 53 feet of the deck with edge failure at random locations along length of joint. 10 feet affected by sealant failure

Closer view of edge failure over Pier 4 EBL

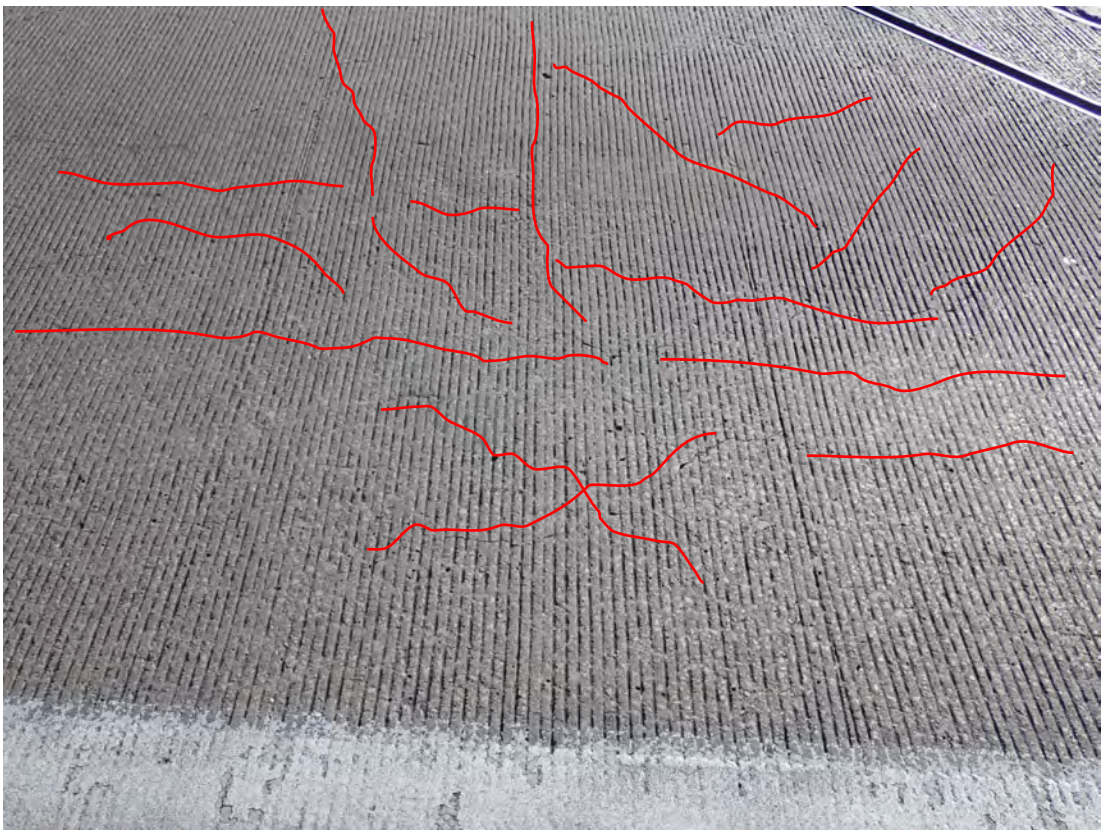


Map cracking again found in Span 3

Ponding against barrier wall in Span 4 EBL

Compression joint seal over Pier 5 EBL

Closer view of compression joint seal over Pier 5 EBL



Deck cracking over Span 7 EBL

Some areas in emergency lane EBL with sound patching

Deck has popout aggregate failures throughout

Compression joint seal over Abutment 8 EBL

Looking west along I-264 EB toward Bells Lane/KY 2056 over P&L Railway

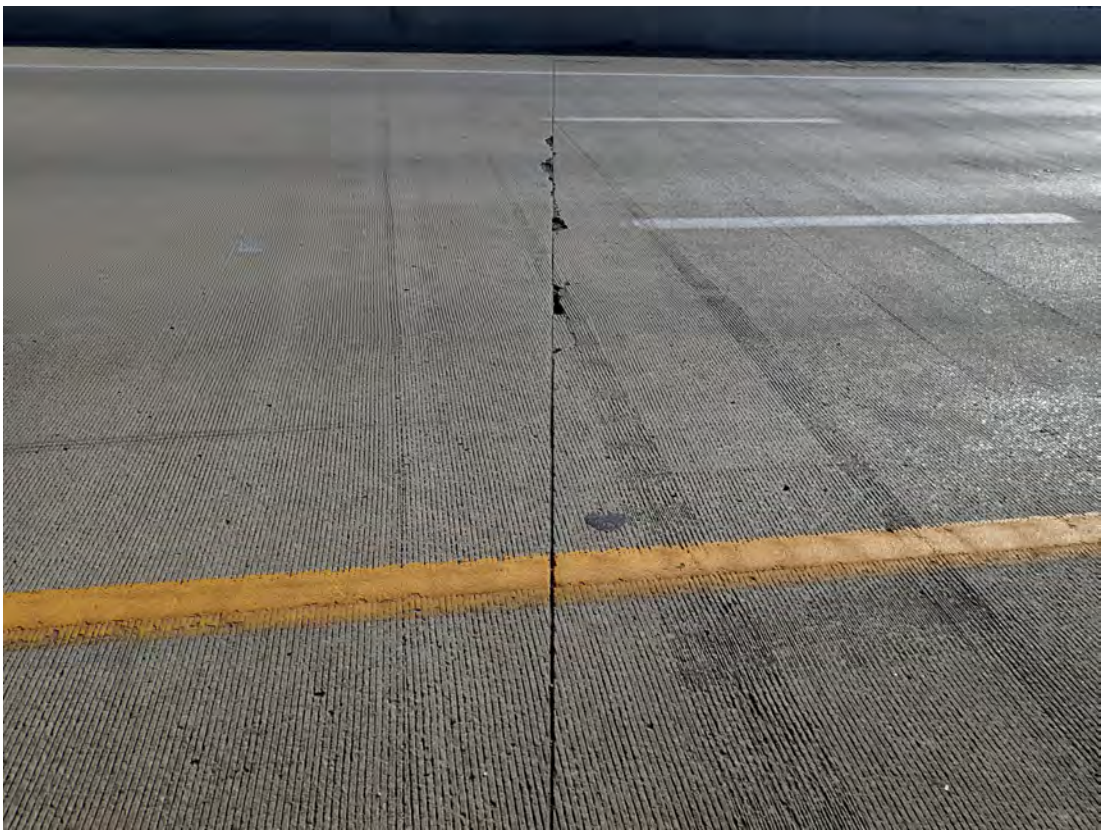
Looking east along I-264 WB toward Cane Run Road/KY 1934 over P&L Railway

Abutment 1 WBL transition repair left one lane with transition unchanged

Closer view of transition at Abutment 1 WBL

Compression joint seal over Abutment 1 WBL

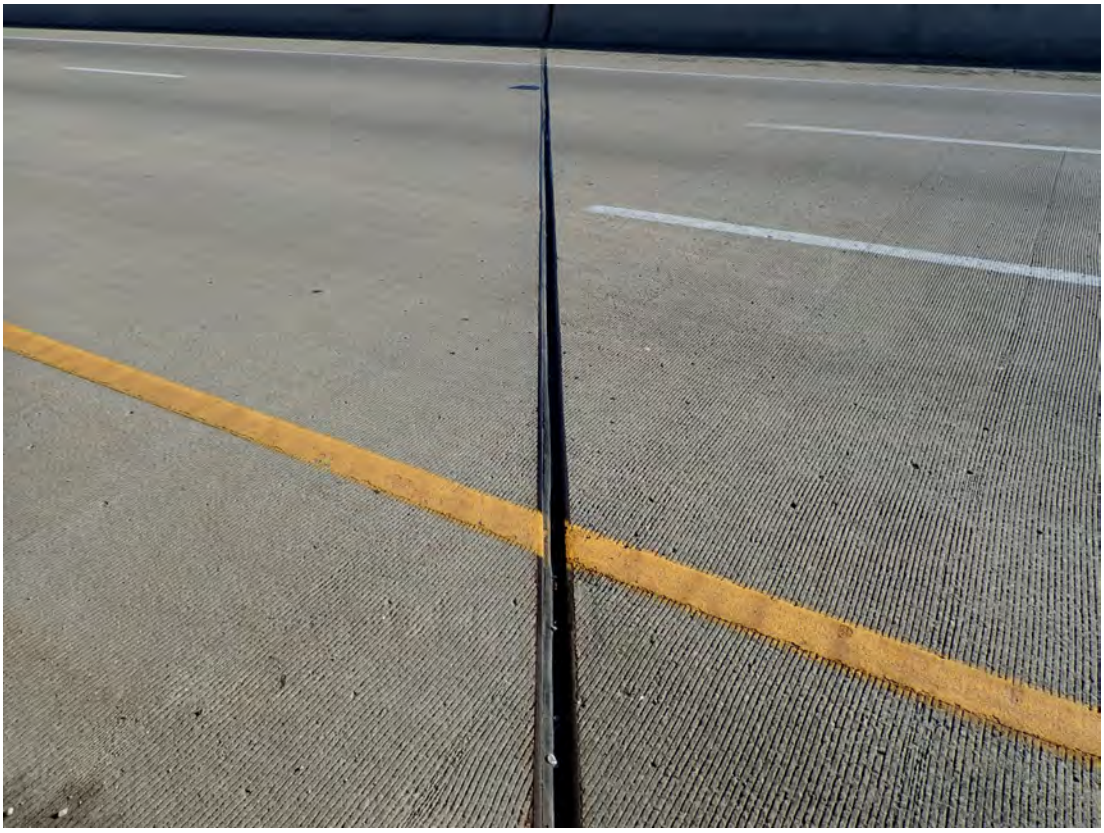
Typical condition of barrier wall



Relief cut over Pier 2 WBL with what appears to be a pourable sealant material across 53 feet of the deck with edge failure at random locations along length of joint. 9 feet affected by sealant failure

Relief cut over Pier 3WBL with what appears to be a pourable sealant material across 53 feet of the deck with edge failure at random locations along length of joint. 4 feet affected by sealant failure

Ponding along barrier wall in Span 4 WBL



Compression joint seal over Pier 5 WBL

Closer view of compression joint seal over Pier 5 WBL

Compression joint seal over Abutment 8 WBL

Looking west along I-264 WB toward Bells Lane/KY 2056 over P&L Railway

Abutment 1

South end of Abutment 1 with spalling, exposed steel reinforcement with section loss

Closer view of above photo

Abutment 1-Girdrs 9 & 10

Closer view of Abutment 1-Girders 10

Abutment 1-Girder 12

Closer view of Abutment 1-Girder 12 with side longitudinal cracking in lower portion of beam web

Tyipcal bearing device condition at Abutment 1, showing Beam 12 device

West face Pier 2

East face Pier 2

at

Typical repaired bearing device & pedestal condition at Pier 2

Looking up at Span 2 girders with patched areas & Pier 2 cap deterioration

Span 2 girders have spalling with exposed steel reinforcement

Pier 2-Girder 14 with vertical cracking at beam end

West face Pier 3

East face Pier 3

Bottom side of Cap 3 and deck soffit patching near pier

Pier 3-Column 1

Span 3-Pier 3-Girder 10 with spalling and exposed steel reinforcement

Pier 3-Column 6 with wide cracking & delamination near bottom of cap

West face Pier 4

East face Pier 4

Pier 4-Column 1

Cut brush debris stacked up between Spans 4 & 5

Closer view of debris pile through Span 4

West face Pier 5

East face Pier 5 and debris pile under Span 5

Pier 5-Column 2 with side vertical cracking on multiple faces

Pier 5-Column 2 west face with full height wide vertical cracking along a line of epoxy injection locations made as port of 2003 rehab project

Pier 5-Column 2 south face with full height wide vertical cracking

Pier 5-Column 4 with wide vertical cracking

Deep large spalling in overhang above north end of Pier 5

Span 5 deck soffit under WBL

Span 5 deck soffit under EBL

Deck soffit patching over Pier 5

West face Pier 6

East face Pier 6

Span 6 deck soffit over WBL

Deck soffit has some spalling with exposed steel reinforcement

West face Pier 7

East face Pier 7

Typical repaired condition of bearing devices and pedestals at Pier 7

Abutment 8

Centerline of Abutment 8 backwall with cracking and staining

Abutment 8-Girder 1 pedestal spalling

Abutment 8-Girder 1 anchor bolt appears to have been epoxied out of vertical plumb, as the bearing pad has no sign of expansion

Abutment 8-Girder 5 missing nut on north side

Closer view of Abutment 8-Girder 7 missing nut on north side -- note vertical cracking over bearing

Abutment 8-Girder 10 with vertical/diagonal crackingjust behind the sole plate of bearing device

Abutment 8-Girder 12 with misaligned anchor bolt

Abutment 8-Girder 12 with misaligned anchor bolt and slight expansion of the elastomeric pad toward the abutment backwall