Bridge Inspection Report

056B00182N
Inspector: Blake Combs
Entered by: BCOMBSCON
12/10/2024
Standard (24 months)

IDENTIFICATION

Structure Num (8):	056B00182N
NBI Number	056B00182N
Structure Name:	
Location (9):	0.4 MI N OF US 60A
Carries (7):	I-65
Type of Service (42A):	1 Highway
Feature Crossed (6):	KY 61 (E BRANDEIS AVE)
Type of Service (42B):	1 Highway
Placecode (4):	Not Applicable
County (3):	Jefferson (056)
State (1):	21 Kentucky
Admin Area:	Inventory
District:	District 5
Latitude (16):	38° 13' 6"
Longitude (17):	85° 45' 8"
Owner (22):	State Highway Agency
Maint. Resp. (21):	State Highway Agency
Year Built (27):	1957
Year Recon (106):	1982
Border State (98A):	Not Applicable (P)
Border Number (99):	
% Responsibility (98B):	

Poor **Heath Index:** 83.50

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

Inspection Type	Freq (92)	Last Insp (93)	Next Insp
Routine	24	12/10/2024	12/10/2026
Element	24	12/10/2024	12/10/2026
Fracture Critical (A)		1/1/1901	1/1/1901
Underwater (B)		1/1/1901	1/1/1901
Special Insp (C)		1/26/2017	1/1/1901

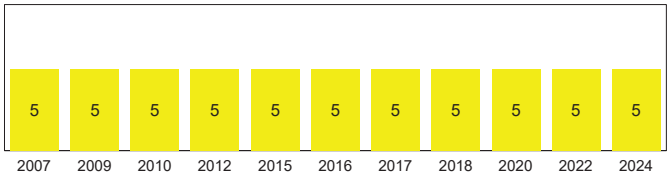
LOAD RATING AND POSTING

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 Single Axle:**	
EV Tadem Axle:		**EV Tadem Axle:**	
EV Gross:		**EV Gross:**	

DECK GEOMETRY

Deck Geometry (68):	7 Above Min Criteria
Deck Area:	13,969.00 ft²
Deck Type (107):	1 Concrete-Cast-in-Place
Wearing Surface (108A):	6 Bituminous
Membrane (108B):	0 None
Deck Protection (108C):	1 Epoxy Coated Reinforci
Approach Roadway width (32):	95.00 ft.
Width Curb to Curb (51):	95.00 ft.
O. to O. Width (52):	101.30 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):	0 Substandard
Transition (36B):	0 Substandard
Approach Rail (36C):	0 Substandard
Approach Rail Ends (36D):	0 Substandard

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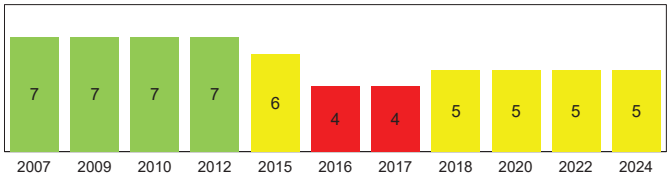
SUPERSTRUCTURE GEOMETRY

# of Main Spans (45):	3
# of Approach Spans (46):	0
Main Material (43 A):	2 Concrete Continuous
Main Design (43 B):	04 Tee Beam
Max Span Length (48):	58.00 ft.
Structure Length (49):	137.90 ft.
NBIS Length (37):	Long Enough
Temp Structure (103):	Not Applicable (P)
Skew (34):	0°
Structure Flared (35):	0 No flare
Parallel Structure (101):	No || bridge exists
Approach Alignment (72):	8 Equal Desirable Crit

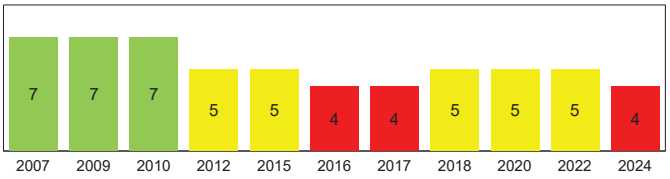


SUPERSTRUCTURE CONDITION

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

SUBSTRUCTURE GEOMETRY

Navigation Control (38):	NA-no waterway
Nav Vert Clearance (39):	0.00 ft.
Nav Horiz Clearance (40):	0.00 ft.
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:	Yes	**Scour Observed:**	N/A
Overlay Type:	L T Polymer Asph	**Scour Risk :**	N/A
Overylay Thickness:	2.25 in.	**Scour Analysis/Assessment :**	Not Required
Overlay Year:	2012	**Scour POA :**	Not Required
Cross Section:	Not Required	**Scour POA Date :**	
Cross Section Date:		**Next Cross Section Due Date :**	

1ST NON-CARD ROUTE ON: I-65 NC

ROADWAY LOCATION

Pos Prefix (5A):	1st Non-Card Route
Kind of Hwy (5B):	1 Interstate Hwy
Route Num (5D):	00065
LRS Route (13A/B):	IO0065_000/00
Milepost (11):	133.33 mi
Suffix (5E):	0 N/A (NBI)
Lanes Under (28B):	6
Detour Length (19):	8.00 mi

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):	122,958 Cars/Day
Pct Trucks (109):	16.00%
ADT Year (30):	2024

CLEARANCES

Vertical (10):	99.99 ft.
Min Vert Over (53):	99.99 ft.
Vert Ref (54A):	H Hwy beneath struct
Undrclearnce (54B):	13.92 ft.
Horizontal (47):	47.50 ft.
Min Lat Left (56):	4.40 ft.
Min Lat Right (55B):	5.50 ft.
Horiz Ref (55A):	H Hwy beneath struct
Underclearance (69):	3 Intolerable - Correct

1ST NON-CARD ROUTE UNDER: E BRANDEIS AVE

ROADWAY LOCATION

Pos Prefix (5A):	1st Non-Card Route
Kind of Hwy (5B):	3 State Hwy
Route Num (5D):	00061
LRS Route (13A/B):	
Milepost (11):	10.91 mi
Suffix (5E):	0 N/A (NBI)
Lanes Under (28B):	3
Detour Length (19):	1.00 mi

ROADWAY CLASSIFICATION

Funct Class (26):	16 Urban Minor Arterial
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):	6,761 Cars/Day
Pct Trucks (109):	9.00%
ADT Year (30):	2023

CLEARANCES

Vertical (10):	14.75 ft.
Min Vert Over (53):	99.99 ft.
Vert Ref (54A):	H Hwy beneath struct
Undrclearnce (54B):	13.92 ft.
Horizontal (47):	24.75 ft.
Min Lat Left (56):	4.40 ft.
Min Lat Right (55B):	5.50 ft.
Horiz Ref (55A):	H Hwy beneath struct
Underclearance (69):	3 Intolerable - Correct

ROUTE UNDER STRUCTURE: E BRANDEIS AVE Y

ROADWAY LOCATION

Pos Prefix (5A):	One Route Under
Kind of Hwy (5B):	3 State Hwy
Route Num (5D):	00061
LRS Route (13A/B):	
Milepost (11):	0.04 mi
Suffix (5E):	0 N/A (NBI)
Lanes Under (28B):	1
Detour Length (19):	1.00 mi

ROADWAY CLASSIFICATION

Funct Class (26):	16 Urban Minor Arterial
Level Service (5C):	7 Ramp
NHS (104):	0 Not on NHS
Defense Hwy (100):	0 Not a STRAHNET hwy
Toll Facility (20):	3 On free road
ADT (29):	6,910 Cars/Day
Pct Trucks (109):	2.00%
ADT Year (30):	2012

CLEARANCES

Vertical (10):	14.00 ft.
Min Vert Over (53):	99.99 ft.
Vert Ref (54A):	H Hwy beneath struct
Undrclearnce (54B):	13.92 ft.
Horizontal (47):	14.00 ft.
Min Lat Left (56):	4.40 ft.
Min Lat Right (55B):	5.50 ft.
Horiz Ref (55A):	H Hwy beneath struct
Underclearance (69):	3 Intolerable - Correct

ROUTE ON STRUCTURE: I-65

ROADWAY LOCATION

Pos Prefix (5A):	Route On Structure
Kind of Hwy (5B):	1 Interstate Hwy
Route Num (5D):	00065
LRS Route (13A/B):	IO0065_000/00
Milepost (11):	133.34 mi
Suffix (5E):	0 N/A (NBI)
Lanes On (28A):	6
Detour Length (19):	8.00 mi

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):	122,958 Cars/Day
Pct Trucks (109):	16.00%
ADT Year (30):	2024

CLEARANCES

Vertical (10):	99.99 ft.
Min Vert Over (53):	99.99 ft.
Vert Ref (54A):	H Hwy beneath struct
Undrclearnce (54B):	13.92 ft.
Horizontal (47):	47.50 ft.
Min Lat Left (56):	4.40 ft.
Min Lat Right (55B):	5.50 ft.
Horiz Ref (55A):	H Hwy beneath struct
Underclearance (69):	3 Intolerable - Correct

STRUCTURE NOTES

-MINIMUM VERTICAL UNDER-CLEARANCE MEASURED AT 13'-11". SHOULD BE POSTED AT 13'-8".
-In 2023, AECOM used infrared thermography to identify and locate areas of concrete delamination and overlay debonding in the deck, plus they obtained core samples for testing to determine chloride ion levels in the concrete. See Media tab for results.
-2017 project (CID 174301) included replacement of asphalt plug joints.
-2012 project (CID 121305) included: 1. Deck was overlaid with 2.25 inch asphalt waterproofing mix (low temp., a product of "Road Science" - not Rosphalt), 2. Median barrier wall was replaced with a larger 50 inch tall barrier wall, 3. Asphalt plug joints were installed over the existing joints, and 4. Abutment bearings were replaced with elastomeric bearing pads.

INSPECTION NOTES

-BRIDGE IS POSTED AT 13'-8" AT BOTH APPROACHES.
-Additional signs are in place on Arthur St just north of Brandeis Ave.

Standard 24 month element level inspection performed by B.Combs (QTL) and Luke Adkins.
Prime AE 12/10/2024 BC
Substructure units are labeled from south to north (cardinal direction) and the beams are labeled from left to right while looking north.

Due to the heavy spalling in the Abutment 4 backwall between Beams 3-10 (35' CS4), the substructure rating has been lowered from a 5 to a 4.

SCOUR NOTES

LOAD RATING NOTES

2/28/19 Controlling member is a original interior beam with latex overlay, 2.25 inch rosphalt overlay, and medians retrofitted. DGA

COMPLIANCE NOTES

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**	**12/10/2024**	**13,970.00**	**sq.ft**	**11,763.00**	**2,178.00**	**29.00**	**0.00**

Top of the deck cannot be inspected due to 2012 asphalt overlay. Soffit has intermittent transverse cracking with efflorescence, with heaviest density in Span 2. In Spans 1 and 3, soffit cracking is denser below the southbound lanes. Bays 1 & 3 near Abutment 1 have spalling up to 8" diameter with exposed rebar. The spalling in Bay 3 has adjacent delamination. Bay 8 in Span 2 has 15 SF of full depth deterioration near the 3/4 point. At the longitudinal joint, there is 4 SF of full depth deterioration at Abutment 1 and roughly 8 SF of full depth deterioration with closely spaced cracking, efflorescence, and rust staining at Abutment 4.

The 2023 infrared thermographic scan performed by AECOM shows many areas of possible delamination in the underside of the deck. 80 SF has been added to CS2 to account for these areas.

813	AC Wearing Surf w/ Membrane	3	12/10/2024	13,102.00	sq.ft	12,972.00	0.00	130.00	0.00

Asphalt wearing surface has a full length longitudinal crack along the west southbound shoulder edge line.

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**	**12/10/2024**	**2,483.00**	**ft**	**2,261.00**	**202.00**	**20.00**	**0.00**

Beams have intermittent patching along the top, some unsound with pattern cracking, as well as moderate to wide vertical and diagonal cracking, mostly near the ends. At Abutment 1, east face of Beam 9 has 2 feet of spalling with exposed rebar plus closely spaced cracking; patching in the top of the beam is unsound with a 4 inch deep void. Beam 10 has a 1' long x up to 6" high spall at Abutment 1. In Span 2, Beam 18 has several spalls and scrapes in the bottom face from impact, with two spalls being greater than 1 inch deep. At Abutment 4, Beam 9 has unsound patching and spalling, and Beam 16 has 2 feet of wide horizontal cracking. Beams 5, 7, and 14-16 also have spalling under them that is nearing the sole plates.

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**	**12/10/2024**	**16.00**	**each**	**0.00**	**16.00**	**0.00**	**0.00**

All columns have small cracks and/or shallow spalls (difficult to inspect due to paint).

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	12/10/2024	203.00	ft	76.00	37.00	55.00	35.00

Abutment backwalls have intermittent patching, many areas unsound or spalling with exposed rebar. The spalling in the backwall is most notable in Bays 3, 9, and 10 at Abutment 1 and between Beams 3-10 (35' CS4) at Abutment 4. The Abutment 4 backwall appears to be nearly completely spalled with Bay 9 having exposed and broken rebar. Heavy patching in also present in the asphalt plug joint above this location. Spalling in Abutment 1 backwall at the longitudinal joint is up to 5 inches deep with exposed rebar and section loss; there is similar spalling at Abutment 4. Abutment 1 backwall has wide diagonal crack at the east end with spalling along the crack. Abutment seats have moderate to wide horizontal cracking, scaling, and spalling with exposed rebar.

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	12/10/2024	204.00	ft	177.00	26.00	1.00	0.00

Pier caps have moderate cracks, spalls, and sound patches (difficult to inspect due to paint). There is one area of wide vertical cracking in the south face of the Pier 2 cap under Beam 2.

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
306	Other Joint	3	12/10/2024	203.00	ft	0.00	24.00	54.00	125.00

Asphalt plug joints were installed over the existing joints in 2012 and plug joints were redone in 2017. Asphalt plug joints have cracking, rutting, and spalling, some spalls with original joints exposed. Water drains moderately to freely onto the elements below. Spalling and patching in the asphalt plug joints is most notable in the southbound lanes over Abutment 4 with most of the asphalt plug having patching.

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	12/10/2024	36.00	each	29.00	7.00	0.00	0.00

Bearings at abutments were replaced with elastomeric bearings as part of the 2012 overlay project. Elastomeric bearing pad under Beam 1 at Abutment 1 is not fully in bearing and has a 1/4 inch gap under the northwest corner and the Beam 4 sole plate is hovering above the bearing. Abutment 4, Beam 10 bearing movement is restricted by debris on the abutment seat. Bearing pads are in overall good condition, but a few sole plates have moderate corrosion at each abutment.

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
311	Moveable Bearing	3	12/10/2024	18.00	each	0.00	18.00	0.00	0.00

Rocker bearings at Pier 3 have freckling rust. All rocker bearings at Pier 3 are extended and inconsistent with the exterior bearings.

515	Steel Protective Coating	3	12/10/2024	90.00	sq.ft	0.00	62.00	10.00	18.00

Steel protective coating is dulling throughout, with areas of limited effectiveness on the masonry plates and areas having no protection allowing freckled corrosion to form.

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
313	**Fixed Bearing**	**3**	**12/10/2024**	**18.00**	**each**	**0.00**	**18.00**	**0.00**	**0.00**

Fixed bearings at Pier 2 have freckling rust.

515	Steel Protective Coating	3	12/10/2024	90.00	sq.ft	0.00	62.00	10.00	18.00

Steel protective coating is dulling throughout, with areas of limited effectiveness on the masonry plates and areas having failed allowing freckled corrosion to form.

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**	**12/10/2024**	**414.00**	**ft**	**317.00**	**97.00**	**0.00**	**0.00**

Barrier walls have moderate vertical cracks spaced 1 to 3 feet apart, some with efflorescence, plus small spalls and scrapes from impact.

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**	**12/10/2024**	**1.00**	**each**	**0.00**	**0.00**	**1.00**	**0.00**

Abutment diaphragms have wide cracking, unsound patches, and spalling with exposed rebar.

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
853	**Utilities**	**3**	**12/10/2024**	**1.00**	**each**	**0.00**	**1.00**	**0.00**	**0.00**

At Abutment 4, there are four attachments to the breastwall with three being either rusted in two or broken. These three appear to be abandoned with no utilities inside of them. Only the ~4" conduit appears to be used and has only minor surface corrosion.

The previous inspection noted that several of the lights attached to the Span 2 superstructure were not functional, but no lights were on during this inspection. Its not known if they should be on during the daytime.

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
860	Erosion Ctrl/Prt	1	12/10/2024	1.00	each	0.00	1.00	0.00	0.00

Concrete slope protection is cracked and undermined near the west end of Abutment 1, near the longitudinal joint at Abutment 4, and near the west end of Abutment 4.

West profile

East profile

Vertical clearance signs on Arthur Street and East Brandeis Avenue

Abutment 1

Span 1 face of Pier 2

Underside of Span 1

Underside of Span 2

Spall in the bottom north edge of Beam 18 near midspan of Span 2

Typical transverse cracking with efflorescence in the Span 2 soffit

Area of full depth deterioration in Bay 8 of Span 2 near the 3/4 point

Undermined and settlement concrete slope protection near the west end of Span 1

Wide cracking in the south face of the Pier 2 cap under Beam 2

Spalling with exposed rebar in the underside of Bays 1 & 3 near Abutment 1. Note there is adjacent delaminations next to the Bay 3 spalling

Up to a 1/4" gap under the northwest corner of the Beam 1 bearing pad at Abutment 1

Areas of spalling with exposed rebar in the Abutment 1 backwall. Bay 3 shown

Typical patching along the top of the beams. Beam 4 in Span 1 shown

Heavy spalling with exposed rebar in the Abutment 1 backwall under the longitudinal joint in Bay 9

Spalling with exposed rebar and horizontal cracking in the east face of Beam 9 at Abutment 1

Spalling in the west face of Beam 10 at Abutment 1

Wide diagonal crack with edge spalling in the east end of the Abutment 1 backwall

Abutment 1 approach looking at the northbound lanes

Northbound joint over Abutment 1

Topside of the northbound lanes

Looking east

Northbound joint over Abutment 4

Abutment 4 approach looking at the northbound lanes

Span 2 face of Pier 2

Span 2 face of Pier 3

Scraping with edge spalling in the bottom face of Beam 18 near the 3/4 point of Span 2

Scraping with edge spalling in the bottom face of Beam 18 near the 3/4 point of Span 2

Underside of Span 3

Span 3 face of Pier 3

Abutment 4

Heavy spalling in the Abutment 4 backwall along with full depth deterioration along the soffit in Bay 9

Heavy spalling with exposed and broken rebar in the Abutment 4 backwall. Bay 9 shown

Unsound patching and spalling in the east face of Beam 9 at Abutment 4

2' wide horizontal crack in the west face of Beam 16 at Abutment 4

Spalling with exposed steel in the Bay 15 diaphragm at Abutment 4

Heavy spalling in the Abutment 4 backwall. Bay 3 shown

Heavy spalling in the Abutment 4 backwall. Bay 4 shown

Stamp

Abutment 4 approach looking at the southbound lanes

Soundbound joint over Abutment 4. Note the areas of spalling and patching

Soundbound joint over Abutment 4. Note the areas of spalling and patching

Topside of the southbound lanes

Looking west

Full length longitudinal crack along the west southbound shoulder edge line. Span 1 shown

Southbound joint over Abutment 1

Abutment 1 approach looking at the southbound lanes