Structure Inventory and Appraisal Sheet (English Units)

Bridge Key: 12458 | Agency ID: 103C00056N | SR: 7 | SD/FO: SD

IDENTIFICATION

State 1: 21 Kentucky | Struc Num 8: 103C00056N
Facility Carried 7: HAMILTON RD | Location 9: 200' N OF US 60 @EADSTON
Rte.(On/Under)5A: Route On Structure | Rte. Signing Prefix 5B: 4 County Hwy
Level of Service 5C: 1 Mainline | Rte. Number 5D: 01070
Directional Suffix 5E: 0 N/A (NBI) | % Responsibility : Unknown
SHD District 2: District 9 | County Code 3: Rowan (103)
Place Code 4: FIPS 0000 | Mile Post 11: 0.030 mi
Feature Intersected 6: TRIPLETT CREEK
Latitude 16: 38d 14' 12" | Longitude 17: 083d 21' 48"
Border Bridge Code 98: Unknown (P)
Border Bridge Number 99:

INSPECTION

Frequency 91: 12 months | Inspection Date 90: 5/21/2012 | Next Inspection: 05/21/2013
FC Frequency 92A: NA | FC Inspection Date 93A: NA | Next FC Inspection: NA
UW Frequency 92B: NA | UW Inspection Date 93B: NA | Next UW Inspection: NA
SI Frequency 92C: NA | SI Date 93C: 5/21/2012 | Next SI: NA
Element Frequency: 12 months | Element Inspection Date: 05/21/2012 | Next Elem. Insp. Due: 05/21/2013

CLASSIFICATION

Defense Highway 100: 0 Not a STRAHNET hwy | Parallel Structure 101: No || bridge exists
Direction of Traffic 102: 3 1-lane Br for 2-way | Temporary Structure 103: Not Applicable (P)
Highway System 104: 0 Not on NHS | NBIS Length 112: Long Enough
Toll Facility 20: 3 On free road | Functional Class 26: 09 Rural Local
Defense Hwy 110: 0 Not a STRAHNET hwy | Historical Significance 37: 5 Not eligible for NRHP
Owner 22: 02 County Hwy Agency
Custodian 21: 02 County Hwy Agency

STRUCTURE TYPE AND MATERIALS

Number of Approach Spans 46: 0 | Number of Spans Main Unit 45: 3
Main Span Material/Design 43A/B:
3 Steel | 02 Stringer/Girder

Deck Type 107: 1 Concrete-Cast-in-Place
Wearing Surface 108A: 1 Monolithic Concrete
Membrane 108B: 0 None
Deck Protection 108C: None

CONDITION

Deck 58: 6 Satisfactory | Super 59: 5 Fair | Sub 60: 3 Serious
Culvert 62: N N/A (NBI) | Channel/Channel Protection 61: 5 Bank Prot Eroded

LOAD RATING AND POSTING

Inventory Rating Method 65: 1 LF Load Factor | Operating Rating Method 63: 1 LF Load Factor
Inventory Rating 66: HS1.7 | Operating Rating 64: HS1.7
Design Load 31: 0 Other or Unknown | Posting 70: 0 >39.9% below
Posting status 41: P Posted for load

AGE AND SERVICE

Year Built 27: 1983 | Year Reconstructed 106: -4
Type of Service on 42A: 1 Highway
Type of Service under 42B: 5 Waterway
Lanes on 28A: 1 | Lanes Under 28B: 0 | Detour Length 19: 98.8 mi
ADT 29: 196 | Truck ADT 109: % | Year of ADT 30: 2011

APPRAISAL

Bridge Rail 36A: 0 Substandard | Approach Rail 36C: 0 Substandard
Transition 36B: 0 Substandard | Approach Rail Ends 36D: 0 Substandard
Str. Evaluation 67: 3 | Deck Geometry 68: 2 Intolerable - Replace
Underclearance, Vertical and Horizontal 69: N Not applicable (NBI)
Waterway Adequacy 71: 5 Above Tolerable | Approach Alignment 72: 6 Equal Min Criteria
Scour Critical 113: 2 SC - Extensive Scour

GEOMETRIC DATA

Length Max Span 48: 20.0 ft | Structure Length 49: 60.0 ft
Curb/Sdwlk Width L 50A: 0.0 ft | Curb/Sidewalk Width R 50B: 0.0 ft
Width Curb to Curb 51: 10.8 ft | Width Out to Out 52: 10.8 ft
Approach Roadway Width 32: 11.2 ft (w/ shoulders) | Median 33: 0 No median
Deck Area: 650. sq. ft
Skew 34: 30.00 ° | Structure Flared 35: 0 No flare
Vertical Clearance 10: 99.99 ft | Horiz. Clearance 47: 10.50 ft
Minimum Vertical Clearance Over Bridge 53: 328.1 ft
Minimum Vertical Underclearance Reference 54A: N Feature not hwy or RR
Minimum Vertical Underclearance 54B: 0.0 ft
Minimum Lateral Underclearance Reference R 55A: N Feature not hwy or RR
Minimum Lateral Underclearance R 55: 0.0 ft
Minimum Lateral Underclearance L 56: 0.0 ft

PROPOSED IMPROVEMENTS

Bridge Cost 94: $ 81,000 | Type of Work 75: 34 Widen w/ Deck Reh
Roadway Cost 95: $ 0 | Length of Improvement 76: 5.9 ft
Total Cost 96: $ 81,000 | Future ADT 114: 239
Year of Cost Estimate 97: 1994 | Year of Future ADT 115: 2031

NAVIGATION DATA

Navigation Control 38: 0 Permit Not Required
Vertical Clearance 39: 0.0 ft | Horizontal Clearance 40: 0.0 ft
Pier Protection 111: 1 Not Required | Lift Bridge Vertical Clearance 116:

ELEMENT CONDITION STATE DATA

Str Unit	Elm/Env	Description	Units	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4	% in 5	Qty. St. 5
1	12/1	Bare Concrete Deck	(SF)	650	0 %	0	100 %	650	0 %	0	0 %	0	0 %	0
1	107/1	Paint Stl Opn Girder	(LF)	180	0 %	0	22 %	40	78 %	140	0 %	0	0 %	0
1	210/1	R/Conc Pier Wall	(LF)	24	8 %	2	92 %	22	0 %	0	0 %	0	0 %	0
1	215/1	R/Conc Abutment	(LF)	61	0 %	0	0 %	0	0 %	0	100 %	61	0 %	0
1	334/1	Metal Rail Coated	(LF)	120	100 %	120	0 %	0	0 %	0	0 %	0	0 %	0
1	361/1	Scour Smart Flag	(EA)	1	0 %	0	0 %	0	100 %	1	0 %	0	0 %	0

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Str Unit	Elm/Env	Description	Units	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4	% in 5	Qty. St. 5
1	503/1	Curbs	(LF)	120	100 %	120	0 %	0	0 %	0	0 %	0	0 %	0
1	605/3	Transitions	(EA)	1	100 %	1	0 %	0	0 %	0	0 %	0	0 %	0
1	609/1	Debris on Superstruc	(EA)	1	100 %	1	0 %	0	0 %	0	0 %	0	0 %	0
1	610/1	Chan Drift	(EA)	1	0 %	0	0 %	0	100 %	1	0 %	0	0 %	0
1	611/1	Embankment Erosion	(EA)	1	0 %	0	100 %	1	0 %	0	0 %	0	0 %	0
1	613/1	Vegetation	(EA)	1	0 %	0	0 %	0	100 %	1	0 %	0	0 %	0

Str Unit	Elm/Env	Description	Element Notes
1	12/1	Concrete Deck - Bare	Wearing surface has minor cracking throughout with some small pop out spalls. The deck underside is not completely visible due to the old false work that was left in place. See photos.
1	107/1	Painted Steel Open Girder/Beam	The superstructure consists of 3 steel I beams in each span. Large portions of the exterior beam's paint system has failed and the exposed steel is rusted with minor pitting. The center beams paint is in more fair condition but rusting is prevalent along the bottom flange. Splices exist in these beams at the following locations; near midspan of the center beam in the south span (this is actually two different beams, half of it is the regular dimensions of the center beam and the other half appears to be the dimensions of the exterior beams), the upstream and downstream beams in the center span near the north pier and near midspan, the center beam in the center span near the north pier, and the upstream beam in the north span near the north abutment. These splices appear to be satisfactory while being observed from ground level. See photos.
1	210/1	Reinforced Conc Pier Wall	The lower portions of these piers appear to be older concrete than the upper portions. A near by home owner said that the piers use to consit of concrete footings poured around steel pipes that were used as columns. At a later date these steel pipes were completely encased in concrete. The pier walls have moderate to heavy scaling and deterioration along the flowline. The south pier has an approximate 1' x 1' section that is missing along the flowline at the downstream end. The south pier wall appears to be slightly leaning. This has been previously noted before and the condition does not appear to have changed since the last inspection. Minor cracking, honeycombing, and areas of delamination are present within the pier walls. These piers were partially probed with chest waders during this inspection but the water depth did not allow them to be thoroughly probed throughout. An approximate 2' X 1' void goes completely through the foundation at the streambed of the south pier near the center of the pier. Contraction scour is present under the bridge. The water depth averaged approximately 4'+ under and around the structure, while the water depth averaged approximately only 1'-2' in the normal channel. See photos.
1	215/1	Reinforced Conc Abutment	A flash flood on 04-26-12 removed a large amount of loose stream bed deposit from around these abutments. This revealed extensive undermining that is being closely monitored until repairs are made. The south abutment has some areas of minor cracking with a moderate 1/2' crack in the upstream footing/protection apron. This abutment has a wavy uneven finish. The south abutment also has a deep scour hole adjacent to it and was partially probed during this inspection. Last months inspection with the underwater camera revealed vertical undermining that ranges from 1'-2'. Up to 2.5' of horizontal undermining was probed during this inspection at the downstream end of this abutment's footing/protection apron (Apron width is approximatley 3'). The north abutment has heavy scaling and spalling along the lower portion and flowline of the abutment. This is exposing a steel pipe at the downstream end. The north abutment is currently supported by 3- 6" concrete filled steel pipes. The concrete foundation around these pipes is vertically undermined from 1'-2' and horizontally undermined 2' throughout the abutments length. Due to the unknown foundations of these abutments their quantities have been placed in condition state 4. See photos.
1	334/1	Metal Bridge Railing - Coated	The coating on the railing is satisfactory at this time. The upstream and downstream railing at the south end of the bridge are missing the end treatments. The guardrail posts welded connection to the horizontal members that are connected to the exterior beams are poor connection details. This connection would most likely not support and redirect vehicular impact. These are safety issues that should be addressed. Damage is present along the upstream railing near midspan. This appears to be from drift removal. See photos.
1	361/1	Scour	A flash flood on 04-26-12 removed a large amount of loose stream bed deposit from around the abutments and piers. This revealed extensive undermining at the south and north abutments that is being closely monitored. Scour at the structure is significant enough to warrant immediate correction. This sigificant scour is due to the decreased waterway adequacey from the piers in the stream and the drift that becomes trapped at the piers. The water depth averaged approximately 4'+ under and around the structure, while the water depth averaged approximately only 1'-2' in the normal channel upstream and downstream of the bridge. An underwater camera that was utilized last month and revealed vertical undermining that ranges from 1'-2'. Up to 2.5' of horizontal undermining was probed during this inspection at the downstream end of this abutments footing/protection apron (Apron width is approximatley 3'). The north abutment is currently supported by 3- 6" concrete filled steel pipes. The concrete foundation around these pipes is vertically undermined from 1'-2' and horizontally undermined 2' throughout the abutments length. This structure is being closely monitored until repairs are made. See photos.
1	503/1	Reinforced Concrete Curbs and Tir	Curbs have some areas of minor cracking.
1	605/3	Transitions (Approach/Deck)	Material was added to the approaches after the flash flood on 04-26-12. The approach at the south abutment continues to settle and should have more material added and be compacted.
1	609/1	Debris (On/Around Super)	Minor debris is present on the superstrcuture. See photos.
1	610/1	Channel Drift	A large amount of channel drift (medium sized trees and root balls) is present in the channel of all three spans. This should be removed before the next flood so that more drift does not become trapped and accelerate an already scour critical situation. See photos.

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Str Unit	Elm/Env	Description	Element Notes
1	611/1	Embankment Erosion	The south and north downstream embankments have some moderate to heavy erosion that is caused from the trapped drift that decreases the waterway adequacy and diverts the stream into the embankments. See photos.
1	613/1	Vegetation	A large tree is present at the upstream end of the south abutment. While this tree is helping to hold the embankment at this location, if if were to fall it may fall on the bridge, or it may fall into the channel and obstruct the waterway. See photos.

BRIDGE NOTES

18.3
04/25/12 flash flooding
04/27/12 Posting memo for 3 tons due to scour and undermining of the substructure – ALI.

PAST INSPECTION

Inspection Date: 05/21/2012 Type: 7 Special (0 -60 months)

Inspector: AGREINER Pontis User Key: AGREINER - Alex

Scope:

NBI: ☒ Other: ☒ Element: ☒

Underwater: ☐ Fracture Critical: ☐

INSPECTION NOTES

This is the regularly scheduled inspection cycle for this structure. This is also a special inspection to comply with the self-imposed weekly monitoring of this structure due to the extensive scour received during the flash flooding of 4/26/12. No changes were noted from the previous 5-17-12 inspection. No changes were found via the circular level vial epoxied to the downstream curb on the north end of the bridge or on the bi-directional level vial epoxied to the upstream curb on the north end. The water clarity was very good today. No changes were visible in the extent of undermining/scour and no changes were noted when the substructure was probed . Smart level reading were taken on the recently installed Magnails at the north end of the bridge. The transverse reading was 0.4 degrees low on the downstream side (no change from 5-17-12), and the longitudinal reading (parallel with the roadway) was 0.4 degrees low toward the south abutment (no change from 5-17-12). Both 3 TON postings were in place during this inspection. No improvements/repairs have been made since last inspection. Inspected by A.Greiner and B.Combs.

PAST INSPECTION

Inspection Date: 05/17/2012 Type: 7 Special (0 -60 months)

Inspector: JCALLAHAN Pontis User Key: JCALLAHAN - Joe

Scope:

NBI: ☐ Other: ☒ Element: ☐

Underwater: ☐ Fracture Critical: ☐

INSPECTION NOTES

This special inspection was performed by Joe Callahan on 5-17-12 to comply with the self-imposed weekly monitoring of this structure due to scour received during the flash flooding of 4/26/12. No changes were noted relative to the inspection of 5/11/12. During the inspection of Friday, 5/11/12, a circular level vial was epoxied to the downstream curb on the north end of the bridge and a bi-directional level vial was epoxied to the upstream curb on the north end. Pictures were taked during field visit with me and Erin Van Zee on Monday, having given time for the epoxy to set up over the weekend. Pictures were made of the level bubble positions. No changes were noted in the positions of the level vials from Monday to today's (5-17-12) inspection. The water was exceptionally clear today and no changes in the extent of undermining/scour could be seen from last week's inspection. Magnails were installed at the north end of the bridge to be used as a consistent monitoring location for the smartlevel. The transverse reading was 0.4 degrees low on d/s side, and the longitudinal reading was 0.4 degrees as well low toward the south abutment (see pictures). Also, the reading taken on the deck on the south end remained at 0.2 degrees low on upstream side. Both 3 TON postings were in place. No improvements/repairs have been made since last inspections and weekly monitoring will continue.