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December 5, 2019

Buck Yelton
Public Works Director
City of Villa Hills
720 Rogers Rd.
Villa Hills, KY 41017

RE: Rogers Road Bridge Inspection

Dear Buck:

At your request, I performed an inspection on the box culvert bridge located on Rogers Rd. near the Villa Hills Police Department building. I visited the site on the morning of November 25th, conditions were sunny and the ground was damp from recent rainfall. For reference, the most recent inspection by the KY Transportation Cabinet took place in June 2018, and is due for the next regularly-scheduled inspection in June 2020. Bridge is posted at a 25-ton load restriction.

Road Condition: The asphalt surface on both approaches to the bridge is aging and showing reflective cracking from the original concrete pavement below. While the pavement is nearing the end of its functional life, it does not appear to be showing signs of potholing or base failure in the area of the bridge. A transverse crack and "dip" are noticeable at the transition between the roadway and the bridge, but this is characteristic of typical age-related settlement at the abutment, and is not a cause for major concern at this time. Guardrail is freshly painted (addressing a concern raised by KYTC in the 2018 report). Some shoulder erosion is present at the wingwalls. Recommend further monitoring for signs of pavement undermining.

Exhibit 1: Rogers Rd. westbound approach

Exhibit 2: Rogers Rd. eastbound approach

Exhibit 3: Pavement sag at abutment

Exhibit 4: Shoulder erosion at wingwall

Abutments/Wingwalls: The concrete abutments on both sides of the bridge are showing signs of age-related deterioration: surface scaling, mineral/rust staining, and cracking. Honeycombing is present at areas where the concrete was insufficiently consolidated at time of construction. Previous repairs are visible on both sides. The two sides of the western abutment have shifted and exposed rebar is present at the joint; the joint has been previously filled and the movement does not appear to be recent. Reinforcing bolts and grout/paint sealing are present along the eastern abutment, and the southeast corner of the wingwall has a large vertical crack that has been reinforced with a series of metal bands. All bands appear to be firmly attached and performing adequately at the time of inspection. No additional reinforcement is recommended at this time.

Exhibit 5: Bridge span (viewed from north side)

Exhibit 6: East side abutment
(Note metal banding, bolts, and grout/paint)

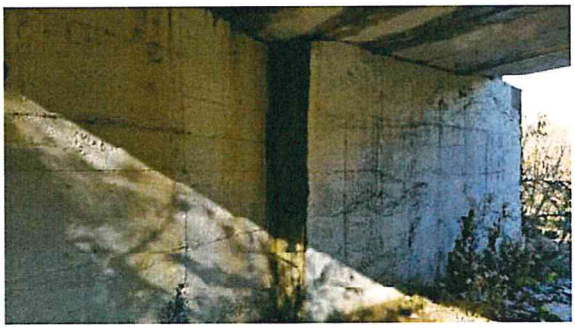

Exhibit 7: West side abutment
(Note abutment offset and honeycombing)

Bridge Deck: The underside of the bridge deck is experiencing some minor (cosmetic) cracking. One longitudinal crack is present and has been previously treated with epoxy injection. Other epoxy injection tubes were noted at seemingly random locations around the bottom of the deck, and did not appear to be related to any cracking or other damage. Active seepage was present along the longitudinal joints of the deck, most likely due to the recent rainfall infiltrating pavement cracks and draining through the deck. This seepage does not appear to be resulting in any external structural deficiency.

Exhibit 8: Bridge deck and seepage
(Crack and epoxy injection tubes present at upper right corner of photo)

Drainage Channel: The stream features a set of bends at the location of the bridge; stream flow is concentrated towards the east side of the bridge span, with a buildup of sediment, stone, and vegetation on the west side. Recommend removal of brush in contract with the abutment on the west side. The abutment/wingwall footers are mostly buried, with a small section of the southeast wingwall exposed and experiencing minor scour. The stream does not appear to be undermining the footer.

Conclusions: While the Rogers Rd. bridge has been in place for almost 45 years now and is experiencing some wear and tear consistent with its age, the previous repairs and load restrictions are performing adequately and only minor maintenance is recommended at this time. Conditions should be monitored for development until the next State inspection.

Please call me if you need any additional information.

Sincerely,

Matt Bogen
City Engineer