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Bridge Assessment Report

Bridge ID	3RD AVE SW – N FORK	**Date**	08.18.2022
Location	3rd Avenue SW over North Fork Maquoketa River	**Program Manager**	Nathan Miller, P.E.
Description	Concrete Slab	**Project No.**	2200201
Orientation	Westbound Traffic: North Lane – Eastbound Traffic: South Lane		

Summary of Intent, Inspection Procedures, and Limits

- Origin Design was contacted by the City of Dyersville Public Works Department to render our opinion as to the feasibility of repairing the 3rd Avenue SW bridge over the North Fork of the Maquoketa River. This report is intended to summarize our observations and recommendations.
- Our observations have been limited to readily available surface conditions. No destructive or invasive testing procedures, load rating, or detailed measurements have been performed as part of this inspection. Isolated acoustical sounding of concrete was performed. Origin Design reserves the right to revise our opinions if additional evidence becomes available.

Summary of Structural Conditions

- Numerous areas of loose and delaminated concrete were observed on the underside of deck, largely concentrated near the deck drains and outermost edges of the deck. There is also evidence that the previously patched areas on the underside of the bridge have delaminated from the underside of the slab.
- The concrete slab shows widespread signs of cracking and efflorescence on the underside of the slab. This is indicative of a high concentration of chlorides within the slab which accelerate the corrosion of reinforcing.
- The timber abutment backwall piles are pressure treated with creosote which only penetrated the outermost 2-3 inches of the pile. This results in the piles decaying from the inside out and these piles are starting to sound hollow when sounded which indicates the initial signs of section loss.
- The structure is in generally fair to poor condition and the rate of deterioration will likely accelerate in subsequent years. While there are no signs of immediate structural instabilities that would require immediate closure, a replacement plan for the structure should be developed.

Summary of Recommendations

- The areas of loose, overhead concrete pose a falling debris hazard which should be mitigated through selective demolition or through the installation of exclusionary fencing to prevent public access to the underside of the bridge.
- The general condition of the structure is not well suited for repair. The timber abutment piles are showing signs of decay and repair of these elements is not generally cost effective. Additionally, the high concentration of chlorides in the deck would ultimately reduce the longevity of any repair work done to the bridge. It is my opinion that repairing the structure would not be cost effective due to the high cost of these repairs and the potentially short longevity thereof. As a result, the bridge should be scheduled for replacement within the next 5-10 years.
- This bridge currently does not qualify for the City Bridge Funds Program as the bridge only scored 6 Priority Points: Sufficiency Rating (71.9 – 2 Points), ADT (1,810 – 4 Points), Detour Route (0.2 Miles – 0 Points), and Bridge Posting (Not Posted for Load – 0 Points). Each category is worth a maximum of 10 points. Funding was last awarded for bridges with at least 20 Priority Points. While the Sufficiency Rating for the bridge will continue to decrease during subsequent inspection cycles, it is unlikely that the bridge will qualify for this program without a reduction in the weight limit posting, which may be required as the structure continues to deteriorate.

08.18.2022

Nathan W. Miller
Bridge Inspection TL/PM

Date

3RD AVE SW – N FORK | 004305

ROAD VIEW LOOKING EAST

ROAD VIEW LOOKING WEST

SIDE VIEW LOOKING NORTH

SIDE VIEW LOOKING SOUTH

DECK
Longitudinal cracking on deck and sidewalk.

NORTH CURB
Spalling and cracking concrete along the north curb.

NORTH CURB
Spalling and cracking concrete along the north curb.

NORTH CURB
Spalling and cracking concrete with exposed reinforcement along the north curb.

SIDEWALK

Longitudinal and transverse cracking on sidewalk along the south edge of deck.

UNDERSIDE OF WEST SPAN

Hairline longitudinal cracking with efflorescence underside of west span approximately below eastbound lane.

UNDERSIDE OF SIDEWALK ALONG SOUTH EDGE OF DECK
Spalling concrete with exposed reinforcement along the south edge of deck under the sidewalk.

SOUTH EDGE OF DECK UNDER CENTER SPAN
Spalling concrete with exposed reinforcement along the south edge of deck under the center span.

SOUTH EDGE OF DECK UNDER CENTER SPAN
Spalling concrete with exposed reinforcement along the south edge of deck under the center span.

UNDERSIDE OF SIDEWALK ALONG SOUTH EDGE OF DECK
Spalling concrete with exposed reinforcement along the south edge of deck under the sidewalk.

NORTH DECK DRAIN IN WEST SPAN
Spalling concrete with exposed reinforcement and efflorescence underside of deck around the north deck drain in the west span.

SOUTH DECK DRAIN IN WEST SPAN
Delaminated and cracked concrete with efflorescence underside of deck around the south deck drain in the west span.

NORTH DECK DRAIN IN CENTER SPAN
Spalled, delaminated and cracked concrete with efflorescence underside of deck around the north deck drain in the center span.

SOUTH DECK DRAIN IN CENTER SPAN
Spalled, delaminated and cracked concrete with efflorescence underside of deck around the south deck drain in the center span.

End of Report