



Florida Department of Transportation

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DATE October 13, 2022

TO: District Structures Maintenance Engineers

FROM: Felix Padilla, P.E., State Structures Maintenance Engineer

DocuSigned by:
Felix Padilla
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SUBJECT: Revised Guidelines for Assigning NBI Condition Ratings for Sonovoid Slab Bridges

Based on discussions between the District Structures Maintenance Engineers, representatives of the State Materials Office, and the Structures Section of the Office of Maintenance, modified guidelines used to rate sonovoid slab bridges were created in 2019. After performing inspections on these bridges and assigning NBI ratings based on these guidelines, it was determined that they were too conservative and did not reflect the actual conditions of these structures. To update these guidelines, the Office of Maintenance and the District Maintenance Offices reviewed and developed the changes attached.

These guidelines shall be used for rating sonovoid slab bridges with any inspection that starts after October 13, 2022. The Districts have the option of using the revised guidelines with inspections that have not yet been finalized.

Attachment: Additional Guidance for assigning NBI Ratings for Deck/Superstructure for Sonovoid Slab Bridges

Exterior Beams with overhang greater than or equal to one-quarter of the slab width

NBI Rating 6-9 - No change

NBI Rating 5 – Fair - Any of the following:

- Any exposed or broken prestressing strands
- Spalls/Delaminations 10-20% of area of any prestressed beam or slab
- Hairline longitudinal cracks in the bottom of any prestressed beam or slab
- Active leakage with efflorescence between the slab units
- Beam or slab units have rotated and corrective action has been taken, or structural analysis shows that rotational moment is adequately resisted.

NBI Rating 4 – Poor - Any of the following:

- 6-15% of the prestressing strands are exposed or broken in any prestressed beam or slab
- Spalls/Delaminations 21-30% of area of any prestressed beam or slab
- Hairline transverse flexure cracks in any prestressed beam or slab
- Hairline longitudinal cracks with heavy efflorescence or medium to heavy rust staining
- Heavy efflorescence at the location of the transverse PT bars and/or minor rust staining between the beam or slab units at the location of PT bars.
- Transverse PT bars exhibiting signs of appreciable section loss (>15%)
- Initiation of vertical or diagonal cracks in fascia of beam or slab units near open joints in the barrier/railing (< 3" length)
- Beam or slab units have rotated and corrective action has not been performed

NBI Rating 3 – Serious - Any of the following:

- 16-20% of the prestressing strands are exposed or broken in any prestressed beam or slab
- Spalls/Delaminations > 30% of area of any prestressed beam or slab
- Open flexure cracks in bottom flange of any prestressed beam or slab
- Vertical or diagonal cracks in fascia of beam or slab near open joints in the barrier/railing
- Sagging or loss of camber of any prestressed beam or slab
- Any broken or missing transverse PT bars (if evident)

NBI Rating 2 – Critical – Any condition worse than detailed above

Other Beams

NBI Rating 6-9 no change

NBI Rating 5 – Fair - Any of the following:

- Any exposed or broken prestressing strands
- Spalls/Delaminations 10-20% of area of any individual prestressed beam or slab

NBI Rating 4 – Poor - Any of the following:

- 6-15% of the prestressing strands are exposed or broken in any prestressed beam or slab.
- Spalls/Delaminations/Repaired Areas 21-30% of area of any prestressed beam or slab

NBI Rating 3 – Serious - Any of the following:

- 16-20% of the prestressing strands are exposed or broken in any prestressed beam or slab
- Spalls/Delaminations/Repaired Areas > 30% of area of any prestressed beam or slab

NBI Rating 2 – Critical – Any condition worse than detailed above