Accommodating Deterioration In Load Rating Analysis

INDOT Bridge Inspection Conference

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Inspection for Load Rating: Check List

- **Check List @**: [http://www.in.gov/dot/div/contracts/design/dmforms/](http://www.in.gov/dot/div/contracts/design/dmforms/)

- **Pre-Planning before inspection**:
  - Gather Plans, make field copies and sketches
  - Review Plans and familiarize with tension zones and critical areas
  - BIAS Bridge File review for existing load ratings, critical locations and condition ratings, previous section loss areas
  - Prepare tools and see what may be required like callipers, verniers, tilt gage or D-meter

- **During Inspection**:
  - Sketches:
    - Use Pre-prepared sketches or quick line drawings to record deterioration (LxWxD or t)
    - All sheets should have structure number, date, name of inspector and indicate span or location
  - Photos:
    - Take at least two clear photos of deterioration, one close up and one farther away (Can print, annotate and scan or use i-pad with some apps for dimensioning)
    - Consider placing a coin, pencil, etc. in the picture to give reference on the size of the defect
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What to look for ?:

- General
  - Smoothness of the Road approach onto the bridge (Impact from trucks)
- Substructure
  - Loss of Bearing Area
  - Exposed Pile Deterioration
- Steel Bridges
  - Section Loss measurement (L x W x D or t) or % loss (material left/original material)
  - Cracks : (L x W), location
  - Check for repeat condition
  - Check for pack rust, out of plane bending, weld cracks, retrofit deterioration
  - Corrosion and previous vehicle impact areas
  - Document in notes and sketches
- Concrete Bridges
  - Check for section loss (L x W x D or t) or delamination/unsound concrete (L x W)
  - Check for cracks (L x W), location
  - Sound concrete and establish delaminated areas (L x W)
  - Check for exposed rebar and section loss
  - Document in notes and sketches
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- **What to look for ?:**
  - **Prestressed concrete bridges**
    - Check for longitudinal cracks at bottom and sides of beam (L x W, location, condition)
    - Check for vertical cracks at ends of beam (L x W, location, condition)
    - Check for cracks/spalls/rust stains/water seepage or stains, efflorescence (L x W x D)
    - Check for repeat condition (Are cracks appearing on all beams or focused at ends?)
    - Check for Beam Sag
    - Check for broken strands, vehicle impact and unsound concrete
    - Document in notes and sketches
  - **Trusses**
    - Check for section loss (L x W x D or t) or delamination/unsound concrete (L x W)
    - Check for cracks (L x W), at all steel components
    - Check Gusset plates and connections
    - Document Rivet Head Section Loss / Hammer Sound Rivets
    - Document in notes and sketches