

Bridge Preservation

**Preventive Maintenance Alliance (PMA), 2023
Cumberland Falls State Resort Park**



Purpose of the Bridge Preservation Branch



- December 15, 1967, the Silver Bridge in West Virginia collapsed-killing 46 people. The failure was a result of a single eyebar in one of the suspension chains.
- In 1968, the Federal-Aid Highway Act authorized the first NBIS (National Bridge Inspection Standards)- which was enacted in 1971.
- In 1978, the Surface Transportation Assistance Act extended NBIS to all bridges on public roads and established the National Bridge Inventory.

How do you do math in your head?

- Just use imaginary numbers.

Purpose of the Bridge Preservation Branch



- A “Highway Bridge” is a “public vehicular structure more than 6.1 meters (20 feet) in length that spans an obstruction or depression.” This includes all bridges and culverts that span greater than 20ft- these must be included in the NBI.
- 23 CFR 650 details requirements for personnel, inspections, Load Ratings, Scour, and more.

Inspections



- NSTM
 - Nonredundant Steel Tension Member (previously known as “Fracture Critical”)
- Underwater
 - The April 1987 collapse of New York’s Schoharie Creek bridge pointed out the need for underwater inspections and evaluation of bridges for scour. Underwater inspections are for the portions of the bridge that can’t be inspected using wading or probing during a routine inspection.
- In-depth
 - A close up inspection of one or more members to identify any deficiencies not readily detectable using routine inspection procedures.
- Special
 - Impact, Scour, Load Posting, etc.

A bridge beam walks into a bar. The bartender says “What can I get you”?

- Give me a moment.

Load Ratings and Postings



- 23 CFR 650, Part C: “Rate each bridge as to its safe load capacity in accordance with ... AASHTO Manual”.
- “Implement load posting or restriction for a bridge in accordance with... AASHTO Manual, when the maximum unrestricted legal loads or State routine permit loads exceed that allowed under the load rating analysis.”

Scour

- “Perform a scour appraisal for all bridges over water... appraisals should be consistent with Hydraulic Engineering Circulars (HEC) 18 and 20...”



How do you make seven even?

- Subtract the “s”

NTIS

- National Tunnel Inspection Standards
- Effective 2015, requires tunnel owners to establish a program for the inspection of highway tunnels, to maintain a tunnel inventory, to report the inspection findings to FHWA, and to report any critical findings found.
- We have 10 tunnels on inventory.



Asset Management

- TAMP= Transportation Asset Management Plan. Required and submitted to FHWA.
- Bridge Condition is determined by the lowest rating of National Bridge Inventory (NBI) condition ratings for Item 58 (Deck), Item 59 (Superstructure), Item 60 (Substructure), or Item 62 (Culvert).
- If the lowest rating is greater than or equal to 7, the bridge is classified as Good;
- If it is less than or equal to 4, the classification is Poor.
- Bridges rated 5 or 6 are classified as Fair.

NBI Rating Scale

9	Good
8	
7	
6	Fair
5	
4	Poor
3	
2	
1	

Asset Management



- State of Good Repair
 - Objective is to reduce the percentage of bridge deck area in Poor condition.
- Federal Performance Targets
 - These are only for NHS bridges. Kentucky's TAMP includes all state-owned bridges.
 - KYTC did not meet the last goal of 3.6% NHS bridges in poor condition.
 - Indicates a need for work on larger bridges.

A farmer counted 297 cows in the field.

- But when he rounded them up, he had 300.

Contracts

- We also have staff that develops Contract Ready Proposals.
- Bridge Overlays and Painting Contracts.
- Also includes Steel Repairs, Bearing Repairs, superstructure replacements, deck replacements, carbon fiber repairs, joint replacements, drain repairs, and recently- Total Replacements.



Current Staff

- Ashley Graves- Border Bridge Manager
- Erin Van Zee- NBIS Program Manager
- Evan Greenwell- Load Ratings/Permits
- Allie Kramer, Load Ratings
- Harry Greer- Snoopers/Special Equipment
- James Edmunds- Chief Bridge Inspector/NTI Program Manager
- James Brittain- Contract Ready Proposals
- Jenny Begley- Scour
- Katherine Caldwell- Asset Management and UAS
- Ryan Cram- BRM Administrator
- Susanne Winter- GIS and Backup BrM
- Tom Mathews- Contract Ready Proposals
- Brad Poole, Contract Ready Proposals

- Working on 1 more Load Rating Staff



You know what seems odd to me?

- Numbers that can't be divided by two.

QUESTIONS?

**WHAT DID THE MEAN
TRIANGLE SAY TO
THE CIRCLE?**

"YOU'RE POINTLESS!"

