National Bridge Inspection Program Update

FHWA ILLINOIS DIVISION 2021

ILLINOIS BRIDGE INVENTORY

Total Bridges
State: 7,853 Local: 18,956

Load Posted
State: 78 Local: 823

Scour Critical
State: 26 Local: 88

Unknown Foundations
State: 6 Local: 731

Average Age
State: 45 yrs. Local: 42 yrs.

% Fair by Deck Area
2021: 55.1% 2020: 53.4%

% Poor by Deck Area
2021: 12.2% 2020: 12.1%

Poor Bridges
State: 718 Local: 1622

NATIONAL BRIDGE INSPECTION STANDARDS - NBIS

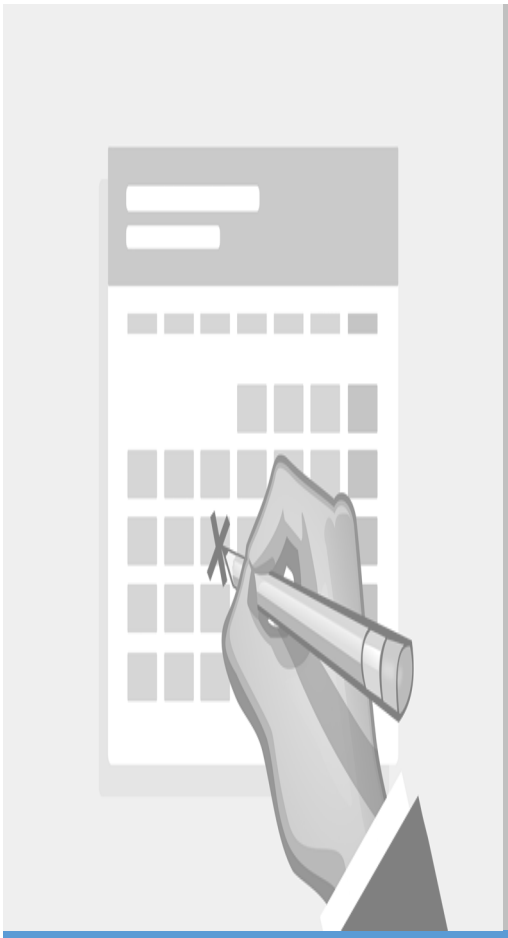
Developed in 1968, the primary purpose of the NBIS is to locate and evaluate existing bridge deficiencies to ensure the safety of the traveling public. The latest NBIS revision took affect in 2010 (minor revision to the 2004 rule) and there is a current Notice of Proposed Rulemaking published to the federal register in 2019. Substantial changes to NBIS requirements are probable pending a Final Rule which is expected to come out soon.

In response to the Office of Inspector General recommendations, the Metrics for the Oversight of the NBI program, started in 2011 to help FHWA division engineers perform compliance reviews of State and Federal agencies. The 23 Metrics are a risk-based and data-driven oversight process, much of the information provided in this newsletter is based on the efforts of this review.

PERFORMANCE FINDINGS

NON-IDOT OWNED BRIDGES

- In 2020 - **3** Local bridge inspections determined to be delinquent by **4 months or greater**.
- **7,018** of 18,062 (39%) Local bridges over waterways have channel cross-sections completed.
- **8** of 12 (67%) sampled Local bridges passed the federal field inspection quality requirements.
- **9** of 11 (82%) sampled Local Fracture Critical Member (FCM) bridges had the correct FCMs identified and adequate procedures.
- **9** of 17 (53%) sampled Local agencies did not have justification of the coding of Item 113 in the bridge file.



INSPECTION DELAYS

Illinois is continually moving closer to having zero bridge inspection delinquencies statewide. However, each review year there are several late inspections without a documented approval for the delay.

Advanced approvals are mostly intended for rare and unusual circumstances, such as flooding and hazardous conditions. It is extremely important that any known or potential delay should be immediately reported by the Agency Designated Program Manager to: DOT.BBS.BridgeMgmt@illinois.gov .

If an inspection delay occurs, the inspection report "delinquency reason field" should be populated with a well described justification.

Per the NBIS compliance review guidelines, **a single bridge inspection over 4 months late**, results in a Non-Compliance determination for the entire State.

There are close to 200 Local Agency Program Managers delegated throughout Illinois. In addition, the lag time between when the inspection is performed and when the inspection is entered in the database, makes it very difficult for IDOT's Bridge Management and Inspection (BM&I) Unit to track each and every potential late inspection.

The BM&I unit heavily depends on Illinois' Team leaders and Program Managers to help prevent and/or properly document inspection delinquencies.

Please continue to help us toward our goal of 0 inspection delays!

DOCUMENTATION QUALITY

The IDOT Structural Services Manual—2017 , specifies that any bridge with a primary condition rating coded **"5" or less, must have inspection comments**. It's recommended that comments be provided for condition ratings of "6" as well.

In addition, regardless of condition ratings, any notable deficiencies should be well documented, i.e. overturned wingwall or failing slope wall, in the Inspection Remarks field (Item 90B).

Lastly, any condition rating of **"4" or less, requires photographs**.

Inspectors should be sure to record comments that are concise and include a description of the **defect, location, and severity.**

Examples of an inadequate comments - "Some cracks", "Minor spalls".

Example of an adequate comment - "Large delams. & spalls in soffit w/ exp rebar & sec loss , N. end"

Program Mangers must review and evaluate comment quality as a part of their Quality Control program and if there are issues, the inspection report should be returned to the TL for modification.

FHWA and the BM&I recognize that local bridge owners and program managers "know their bridges" better than anyone but often times that knowledge remains inside someone head.

Proper documentation is critical for establishing a timeline of condition history, determining if inspections were properly performed, and provides a historical record for future inspectors/ owners.

Good quality inspection comments are critical to the effectiveness of the bridge inspection program.

PROGRAM IMPROVEMENTS

- BridgeWatch is currently under a major overhaul by IDOT. This will improve triggering flood events and provide better guidance on required documentation for field checks in accordance with scour Plans of Action.
- IDOT's Bridge Inspection System (BIS) is in development. Local agencies can now enter their own inspection data. IDOT is adding querying capability so that owners can run real-time reports.
- All FCM and UW Inspection plans were uploaded in IDOT's PONTIS directory. Availability of electronic records continues to increase, with the goal of all records being accessible electronically.

ELEMENT LEVEL INSPECTION

Element level bridge inspections have been performed on IDOT owned bridges since the mid-90's. Element level inspection data is required to be submitted to FHWA for any bridges on the NHS.

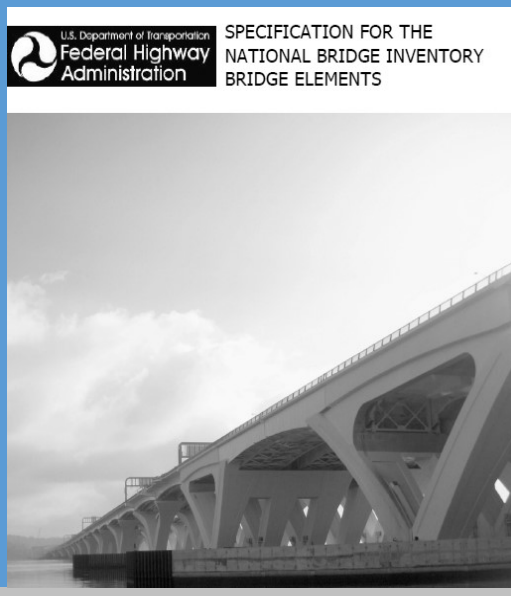
Recently, IDOT has decided to part ways with the previous element level codes found in IDOT's Bridge Element Inspection Manual and adopt AASHTO's National Bridge Elements and Bridge Management Elements.

NBI condition and inventory item accuracy have been a continual focus areas for the FHWA NBIS review.

However, the quality of element level data has never been checked as part of the federal review process.

Over the last 3 years, FHWA has participated in pilot efforts for assessing the quality of Illinois' element level data. Formal assessment of element level data quality by FHWA is expected soon.

All bridges on the NHS should be done with the new bridge elements. Please contact the BM&I unit if you have any questions or need more details.



CRITICAL FINDINGS

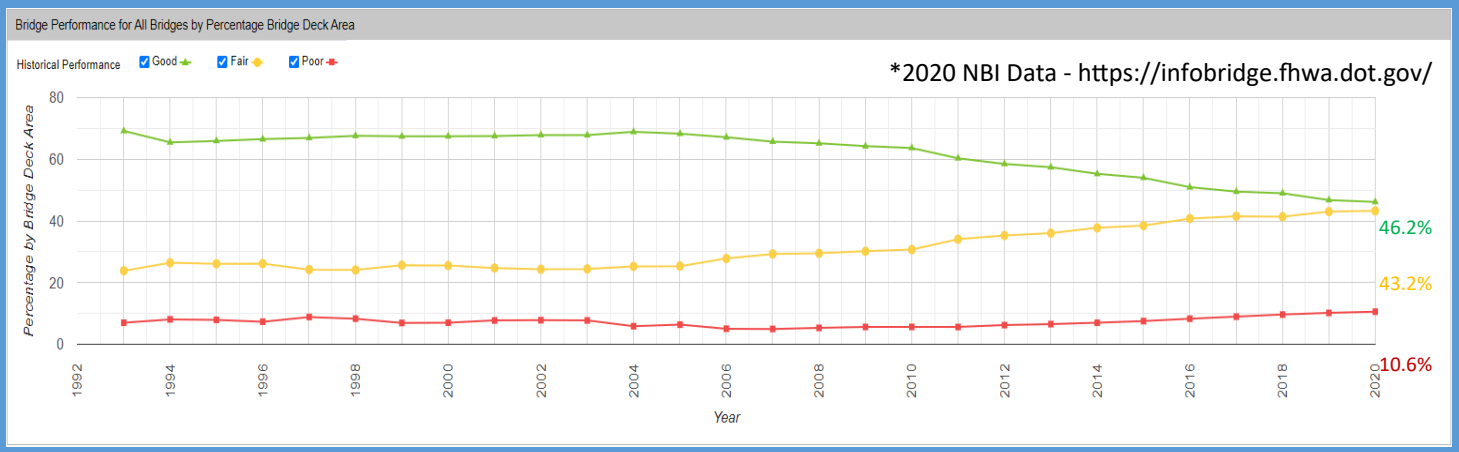
A Critical Finding (CF) is defined as a structural or safety related deficiency that may pose an imminent threat to the safety of the traveling public. This deficiency requires immediate follow-up inspection or action.

FHWA is required to receive all CF reports within 24 hours of discovering the deficiency. FHWA collects this information for a national critical findings database, which is updated quarterly. This information is used to inform data driven programs such as, determining the leading cause of bridges failures and findings trends for deterioration.

As a reminder, here are a few potential critical findings.

- Damaged bridges from impact, fire, or flooding.
- Primary condition rating dropped to a "2" or less.
- Unforeseen event that threatens the safety of the traveling public i.e. full depth deck failure, missing bridge rail.

LOCAL BRIDGE CONDITION



U.S. Department of Transportation
Federal Highway Administration

Dan Brydl
Division Bridge Engineer
Phone: 217-492-4632
Email: Dan.Brydl@dot.gov

Curtiss Robinson
Assistant Division Bridge Engineer
Phone: 217-492-4629
Email: curtiss.robinson@dot.gov

"Working with Our Partners to Improve Bridge Safety in Illinois, and the Nation"

FEEDBACK

FHWA and IDOT are constantly seeking ways to improve and streamline Illinois' bridge inspection program. The most important suggestions typically come from bridge inspection practitioners.

As you complete bridge inspections and related program related duties, please notify the BM&I unit when you find errors, inconsistencies, or potential improvements that could better the NBI program. This includes inspection rating language, requirements, policy, manuals, etc.

You can contact the BM&I unit at: **DOT.BBS.BridgeMgmt@illinois.gov**

REMINDERS

- If you are interested in using the BIS for direct inspection entry and file uploading, please contact the IDOT BM&I Unit.
- If not using BIS. please continue to use the Inspection Date Notification (IDN) system to document when inspections are completed, unless inspection information is submitted to IDOT for entry within thirty (30) days of the inspection, This allows the BM&I Unit to accurately track inspection progress.
- The Bureau of Bridges and Structures has an on-call consultant to perform inspections to ensure delinquencies do not approach 120 days. MFT funds may be frozen until the owner pays the invoice for the inspection.
- Channel cross-sections shall be recorded for all bridges over waterways. See IDOT NBI Subscription Service Announcement 20190717.

TRAINING

- A comprehensive overview of the National Bridge Inspection Standards (NBIS) is located on the FHWA website, at the following link. This module is one of several training modules designed to help Local Public agency professionals navigate the NBIS.
- IDOT developed short training videos on proper bridge inspection documentation, critical findings, and calculating section loss in steel members. Link
- IDOT Sponsored Bridge Inspection classes, under the "Training" tab. Link
- NHI Bridge Inspection related training. Link
- The Technology Transfer program also offers classes and seminars relating to design, construction, and maintenance. Link

RESOURCES

- FHWA resources pertaining to the NBIS, including inspection manuals, policy and guidance, etc. are located on the FHWA website, at the following link.
- The IDOT BBS website contains the resources required to properly administer a Local Public Agency Bridge Inspection Program. The BM&I Unit's website, link, contains tabs for Resources; Training; Webinars and Videos; Forms and NBI Subscription Service Announcement Archives.

Must haves!

1. IDOT *Structural Services Manual, 2017*
2. IDOT Structure Information and Procedure Manual (SIP), 2021
3. Bride Inspection System (BIS) Users Guide
4. Structure Information Management System (SIMS) databases
5. NBI Subscription Service Registration. Send a blank e-mail to the following:

subscribe-dot-nbi@lists.illinois.gov