# INDOT UPDATES

2023 Bridge Inspection Workshop

Anthony Marino, Bridge Inspection Program Manager February 23, 2023



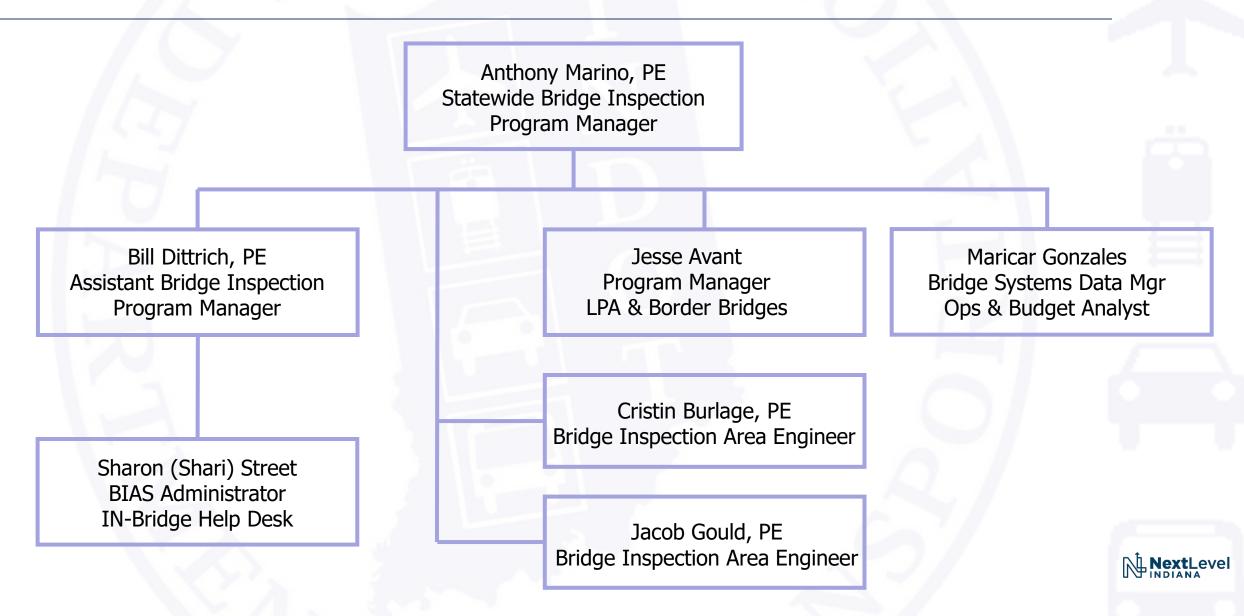
# PRESENTATION AGENDA

- Current Central Office Staffing
- Indiana Total Asset Management System.
- Specifications for the National Bridge Inventory Implementation
- Changes to the Bridge Inspection Manual
- Critical Finding Incident Reporting
- Bridge Inspection 23 Metrics Review
- Upcoming Training





# CURRENT CENTRAL OFFICE STAFFING







o Important Announcement:

BIAS WILL SHUT DOWN FOR USE ON MARCH 14, 2023 AT 6:00 PM EASTERN TIME.

ON MARCH 15, 2023 – USERS WILL NO LONGER BE ABLE TO LOG INTO BIAS. INSPECTIONS SHOULD BE DONE IN PAPER FORMAT.

AFTER MARCH 15, 2023 - BIAS WILL BE LIMITED TO READ-ONLY.



Important Announcement:

ALL INSPECTION REPORTS MUST BE **COMPLETED AND APPROVED** BY THE MARCH  $14^{TH}$  BIAS SHUTDOWN.

ALL "IN-PROGRESS" REPORTS NOT COMPLETED AND APPROVED BY THE SHUTDOWN DATE WILL BE LOST.

WORKFLOW WILL HAVE AN "OPENED FOR CORRECTIONS" STAGE TO ALLOW APPROVED REPORTS TO BE EDITED.

Important Announcement:

AFTER SHUT DOWN — CRITICAL FINDINGS SHALL BE REPORTED TO SPM THROUGH EMAIL UNTIL ITAMS IS OPERATIONAL.

INDOT ISSUED FORMAL MEMORANDUM TO ALL BIAS USERS.

INDOT WILL BE SENDING NO LESS THAN THREE ADDITIONAL NOTIFICATION REMINDERS.



Commercial and Emergency Vehicle Weight Limit Signs:

SELECT STANDARD PHOTOGRAPHS FOR ALL ASSETS WILL BE MAINTAINED IN THE ITAMS **ASSET SECTION** WITH PHOTOGRAPH TYPE TAGGING.

APPROACH ROADWAY ALIGNMENT – BOTH DIRECTIONS

BRIDGE FASCIAS – BOTH SIDES

ALL REQUIRED LOAD RESTRICTION SIGNS (BRIDGE AND ADVANCED WARNING)

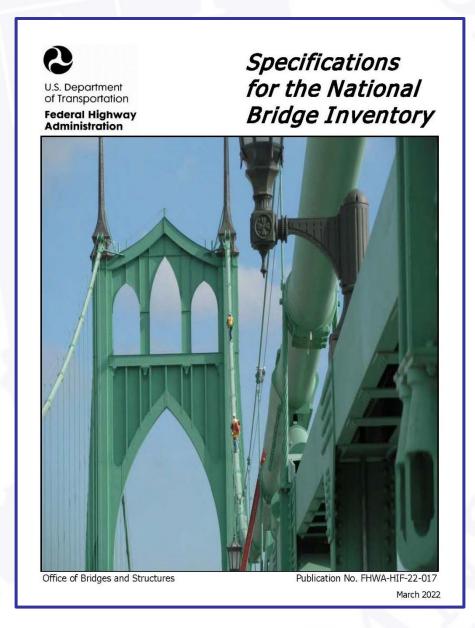
ONCE TAKEN, NEW PHOTOGRAPHS NOT NECESSARY UNLESS CONDITIONS OR SITUATION CHANGES. THESE PHOTOGRAPHS CAN BE TAGGED TO INCLUDE IN PRINTED INSPECTION REPORTS.



- Maintenance Record Documentation (part of Metric 15):
  - § 650.313 (n): Bridge files. Prepare and maintain in accordance with Section 2.2, AASHTO Manual.
  - AASHTO Manual for Bridge Evaluation (MBE) is part of the federal bridge inspection regulations by reference.
  - Article 2.2 requires bridge files to "Maintain relevant maintenance and inspection data..."
  - Article 2.3.7 Maintenance and Repair History: "Include a chronological record documenting he maintenance and repairs to the bridge since its initial construction."

Maintenance/History Section is part of all assets in iTAMS and is where maintenance requests and records shall be maintained.







- QUALIFICATION REQUIREMENTS \*\*
- INSPECTION REPORT TYPES \*\*
- INSPECTION FREQUENCIES AND RISK-BASED ASSESSMENT CRITERIA \*\*

SELECT SUBSECTIONS WITHIN UPCOMING ITAMS

\*\* FHWA: Must be done by: JUNE 6, 2024.

INDOT Revising BIM Part 1 and Part 2 by Year's End.



#### FHWA IMPLEMENTATION SCHEDULE

- APRIL 2023 FHWA TRANSITION TOOL MADE AVAILABLE.
- OCTOBER 2024 NBI NextGen TOOL AVAILABLE FOR DATA VALIDATION.
- MARCH 15, 2025 LAST DATA SUBMITTAL USING OLD CODE.
- MARCH 15, 2028 FIRST COMPLETE SNBI DATASET WITH COLLECTED AND VERIFIED SNBI DATA FOR ALL BRIDGES.

○ 2026 & 2027 – MARCH 15<sup>TH</sup> SUBMITTALS – TRANSITIONED/HYBRID DATA.



SNBI SUBSECTION 6.2: INSPECTION EVENTS

"Data items in this subsection are reported for each inspection performed on the bridge. If more than one type of inspection is performed on a given inspection date, a separate inspection data set is reported for each inspection type performed."



SNBI SUBSECTION 6.2: INSPECTION EVENTS

ITAMS WILL HAVE THE FOLLOWING SEVEN (7) REPORT MASTER TYPES:

ROUTINE
UNDERWATER
INITIAL
DAMAGE

NSTM (FORMALLY FRACTURE CRITICAL)
SPECIAL
IN-DEPTH



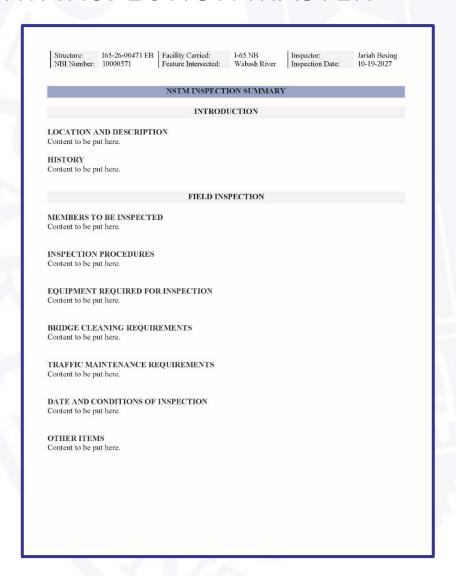
SNBI SUBSECTION 6.2: INSPECTION EVENTS

#### MAIN TAKE-AWAYS:

- INITIAL DONE FOR NEW, POST-REHABILITATION, AND REPAIR
- ROUTINE, INITIAL BULK OF DATA ENTRY WORK
- NSTM INSPECTION SUMMARY, NSTM CONDITION REPORTING TABLES, RATING RECOMMENDATIONS
- SPECIAL, IN-DEPTH, DAMAGE SUMMARY REPORT AND RATING RECOMMENDATIONS.
- UNDERWATER STAND ALONE UNDERWATER INSPECTION REPORT



#### NSTM INSPECTION MASTER



Structure: I65-26-00471 EB Facility Carried: I-65 NB Inspector: Jariah Besing NBI Number: 10000571 Feature Intersected: Wabash River Inspection Date: 10-19-2027

#### SUMMARY OF INSPECTION RESULTS

#### COMPONENT 1

Content to be put here.

COMPONENT 2 (These can be added or deleted as needed) Content to be put here.

#### NBIS CODING INFORMATION

ITEM	CODE	DESCRIPTION
92A: Fracture Critical Details Inspection (Non-Redundant)	Y24	Fracture Critical Inspection every 24 months
93A: Fracture Critical Details Inspection Date	06/09/2020	Inspection date: June 09, 2020
92C: Other Special Inspection Required/Frequency	Y24	Special inspection every 24 months
93C: Other Special Inspection Date	06/09/2019	Inspection date: November 12, 2018

#### SUMMARY OF RECOMMENDATIONS

Content to be put here.



### RATING RECOMMENDATIONS

SPAN	LOCATION / MEMBER	FATIGUE CATEGORY	CONDITION RATING	C	OMMENTS	РНОТО
A	Connection L0 - L0-L1	Е	5	Minor pitting, heavy flaking	rust, 10% section loss	1
A	L0-U1	A	4	Minor pitting, heavy flaking	rust, 10% section loss	2-4
Α	L2-L3	D	8	Minor pitting, heavy flaking	rust, 10% section loss	5
7	L3-U4	В	7	Minor pitting, heavy flaking	rust, 10% section loss	6
7	L5-L6	E	4	Minor pitting, heavy flaking	rust, 10% section loss	7 - 8
			RATING	RECOMMENDATION	ONS	
		CU	RRENT RATING	3	RECOMMENDED RATING	
(59) SU	PERSTRUCTUR	RSTRUCTURE: 8 VERY GOOD - Some inherent defects.		7 GOOD - Some minor defect	ets	
We reco	ommend lowering	the rating due to	advanced deterior	ation to Member L0-L1 (East T	Truss).	
((A) OT 3	BSTRUCTURE:	8	VERV CO	OD - Some inherent defects.	7 GOOD - Some minor defec	ate.

	CURRENT RATING	RECOMMENDED RATING	
(58) DECK:	8	7	
We recommend lowering the rating due to adv	anced deterioration to Member L0-L1 (	East Truss).	
(58.01) WEARING SURFACE:	8	7	
We recommend lowering the rating due to adv	ranced deterioration to Member L0-L1 (	East Truss).	
(58.02) JOINTS:	8	7	
		·	
(58.03) APPROACH SLABS:	8	7	
(59) SUPERSTRUCTURE:	8		
(59.02) BEARINGS:	8		
(60) SUBSTRUCTURE:	8	7	
(60.1) RETAINING WALLS:	8		
(61) CHANNEL \ CHANNEL PROTECTION	1: 8	7	
(62) CULVERTS:	8	8	
(113) SCOUR CRTHCAL BRIDGES:	8	8	



○ SNBI SUBSECTION 6.2 — ITEM B.IE.12: INSPECTION EQUIPMENT

"Report all access and inspection equipment used to perform the inspection using one or more of the following codes. Report multiple codes separated by pipe (|) delimiters."



○ SNBI SUBSECTION 6.2 – ITEM B.IE.12: INSPECTION EQUIPMENT

(90) INSPECTION DATE:	11/30/2022	(91) DESIGNATED IINSPECTION FREQUENCY:	12 MON
(92) CRITICAL FEATURE INSPECTION		(93) CRITICAL FEATURE INSPECTION DATE	
A) NSTM INSP REQ / FREQ:	Y 24	A) NSTM DATE:	11-16-2021
B) UNDERWATER INSP REQ / FREQ:	Y 60	B) UNDERWATER INSP DATE:	11-24-2022
C) SPECIAL INSP REQ / FREQ:	Y 24	C) SPECIAL INSP DATE:	11-19-2022
D) SPECIAL INSP REQ / FREQ:	Y 24	D) SPECIAL INSP DATE:	



### SNBI SUBSECTION 6.2 – ITEM B.IE.12: INSPECTION EQUIPMENT

<u>Code</u>	<u>Description</u>
	<u>Access</u>
AN	No access equipment used
A01	Ladder
A02	Bucket lift vehicle
A03	Under bridge inspection vehicle
A04	Rigging
A05	Waders
A06	Boat
A07	Snorkel
A08	SCUBA
A09	Surface supplied air
A10	Remotely Operated Vehicle (ROV)
A11	Video pole
A12	Borescope
A13	Unmanned aerial systems (UAS)
A14	Service Traveler
AX	Other

<u>Code</u>	<u>Description</u>
	Inspection
IN	No inspection equipment used
I01	Ultrasonic
I02	Ground-penetrating radar
I03	Infrared thermography
104	Radiographic testing
I05	Impact echo
106	Electromagnetic methods
107	Rebound & penetration methods
108	Acoustic emissions testing
109	Dye penetrant
I10	Magnetic particle
I11	Eddy current
I12	Boring or drilling
I13	Underwater imaging
I14	Depth finder/fathometer
I15	Stress wave timer
IX	Other



SNBI SUBSECTION 7.1: COMPONENT CONDITION RATINGS

<u>Item ID</u>	Data Item
B.C.01	Deck Condition Rating
B.C.02	Superstructure Condition Rating
B.C.03	Substructure Condition Rating
B.C.04	Culvert Condition Rating
B.C.05	Bridge Railing Condition Rating
B.C.06	Bridge Railing Transitions Condition Rating
B.C.07	Bridge Bearings Condition Rating
B.C.08	Bridge Joints Condition Rating
B.C.09	Channel Condition Rating
B.C.10	Channel Protection Condition Rating
B.C.11	Scour Condition Rating
B.C.12	Bridge Condition Classification
B.C.13	Lowest Condition Rating Code
B.C.14	NSTM Inspection Condition
B.C.15	Underwater Inspection Condition

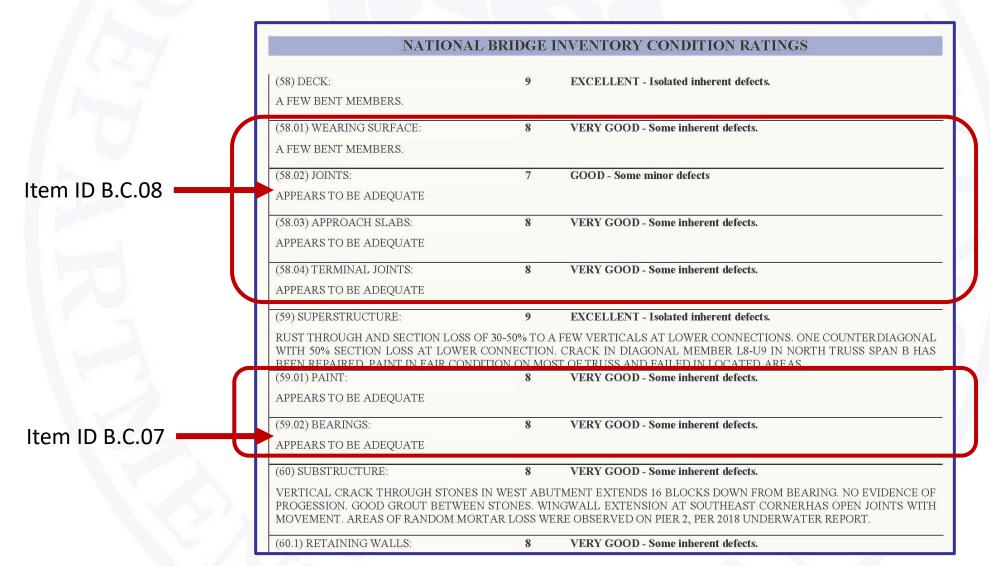


SNBI SUBSECTION 7.1: COMPONENT CONDITION RATINGS

INDOT CREATING NEW **AGENCY ITEMS** FROM THE BIAS MISCELLANEOUS ASSET DATA (MAD) SECTION TO START INCORPORATING INSPECTIONS FOR THESE NEWLY REQUIRED ITEMS.

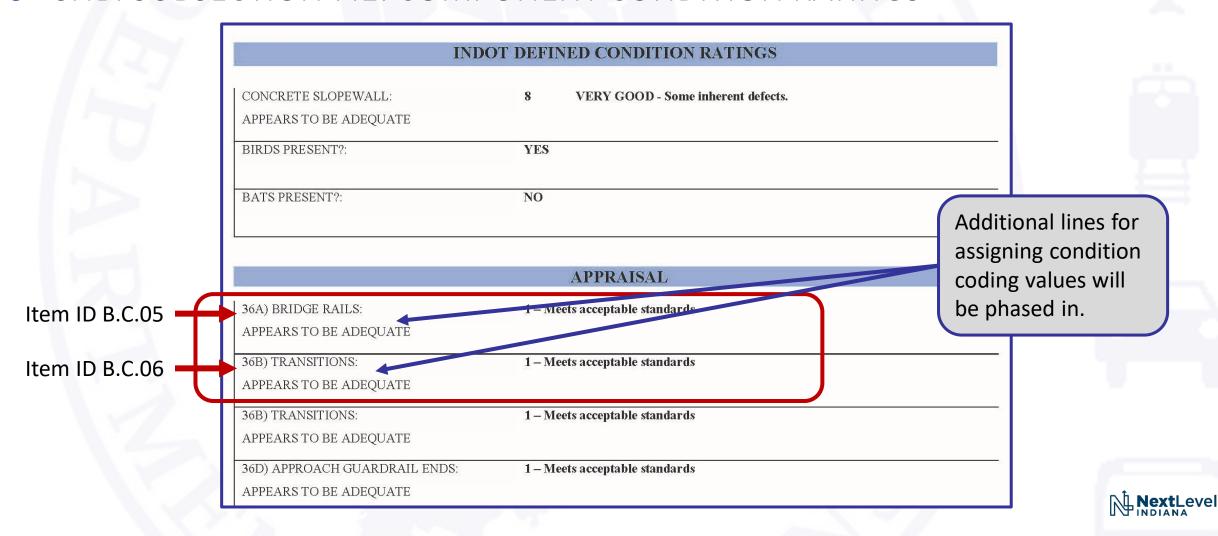


#### SNBI SUBSECTION 7.1: COMPONENT CONDITION RATINGS

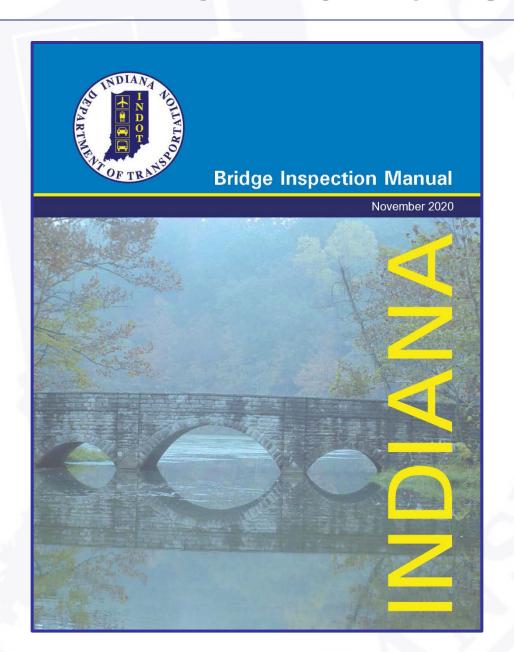




#### SNBI SUBSECTION 7.1: COMPONENT CONDITION RATINGS



# CHANGES TO THE BRIDGE INSPECTION MANUAL





# CHANGES TO THE BRIDGE INSPECTION MANUAL

#### PART 1 – ADMINISTRATION

- Revising Titles, Qualifications, and Responsibilities to meet new rules.
- Requirements for cumulative total of 18 hours of FHWA-approved bridge inspection refresher training over *each 60-month period*.

#### PART 2 – TYPES OF INSPECTIONS

- Revising inspection types as needed to meet new rules.
- Revising critical findings.
- Bridge file requirements to meet AASHTO Manual for Bridge Evaluation.
- Re-writing inspection frequencies to meet new rules defining INDOT's risk-based inspection interval rules.
- Method 1 = 48, 24, and 12 months
- Method 2 = Same as Method 1 but allows a 72-month inspection interval.



# CHANGES TO THE BRIDGE INSPECTION MANUAL

- PART 3 LOAD RATING
  - Revising as needed to meet new rules.
  - Ensuring that all actions related to resolve PCAs are included.
- PART 4 QUALITY CONTROL AND QUALITY ASSURANCE
  - Revising as needed to meet new rules.
  - SNBI Item IDs B.IE.08 and B.IE.09 will require data entries for Quality Control and Quality Assurance Dates.
  - Re-evaluating DISQUALIFICATION and REQUALIFICATION Protocols.
- OTHER PARTS AS REQUIRED INCLUDING PCA IMPLEMENTATIONS.





### CLARIFICATION CONCERNING LOAD RESTRICTION/WEIGHT LIMIT SIGNAGE

Concerns raised with missing load posting signage as critical findings...

"FHWA Response: Missing or illegible signs are a *public safety issue*, and must be replaced according to the owner's posting procedure. FHWA acknowledges that *owners have a wide range of processes* for addressing missing or damaged load posting signage. We have moved this criteria from the critical findings process to load posting in § 650.313(l)(3) of the final rule."



### CLARIFICATION CONCERNING LOAD RESTRICTION/WEIGHT LIMIT SIGNAGE

Concerns raised with missing load posting signage as critical findings...

Continuing... FHWA wrote that "a *30-day maximum timeframe*, from when the need is identified, to replace missing or damaged load posting signs is in the final rule."



CLARIFICATION CONCERNING LOAD RESTRICTION/WEIGHT LIMIT SIGNAGE

From the FINAL RULE in LOAD POSTING

§ 650.313 (I)(3) Missing or illegible posting signs shall be corrected as soon as possible but *not later than 30 days* after inspection or other notification determines a need.



### CLARIFICATION CONCERNING LOAD RESTRICTION/WEIGHT LIMIT SIGNAGE

From the FINAL RULE in CRITICAL FINDINGS

§ 650.313 (Q)(i) Deficiencies include, but are not limited to ... any condition posing an imminent *threat to public safety*. At a minimum, include findings which warrant the following:

(E) Immediate load restriction or posting ... in order to remain open.



CLARIFICATION CONCERNING LOAD RESTRICTION/WEIGHT LIMIT SIGNAGE

INDOT Interpretation and Policy:

DISCOVERED MISSING LOAD RESTRICTION

SIGNS – AT BRIDGE ENDS AND ADVANCED

WARNINGS – SHALL BE REPORTED AS A

CRITICAL FINDING.



### CLARIFICATION CONCERNING LOAD RESTRICTION/WEIGHT LIMIT SIGNAGE

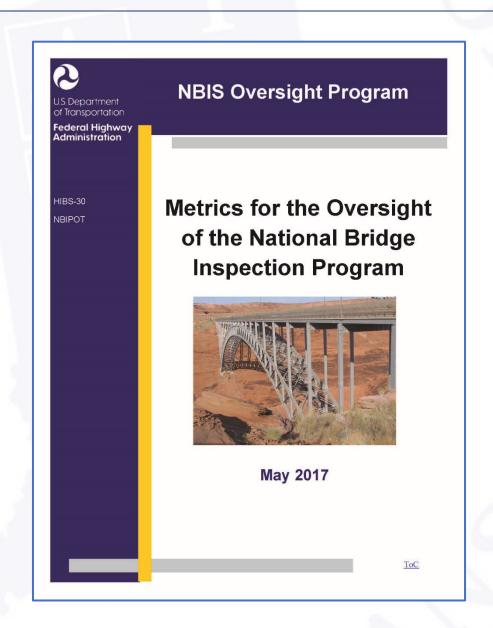
INDOT will be issuing a formal memorandum.

- If missing signage discovered by bridge inspectors critical finding required.
- If need for signage (new or more restrictive) discovered as a result of load rating – critical finding required.
- If discovered by county/local forces must be dealt with as a high-priority maintenance fix that must be corrected within 30-days. However, does not require a formal critical finding incident report.



- o itams critical finding incident report simplified.
- CRITICAL FINDING INCIDENT WORKFLOW MORE STREAMLINED WITH MORE INTERACTION BETWEEN INSPECTOR AND AGENCY.
- o itams sends email notifications at each workflow stage.
  - Inspector reports critical finding incident in iTAMS and submits to SPM.
  - > SPM reviews incident report APPROVES or RETURNS FOR CORRECTIONS.
  - Incident report approval triggers automatic FHWA email notification protocol.
  - Approved incident report returned to inspector for follow up immediate corrective action and documentation. Once done resubmitted to SPM.
  - > SPM closes out if done; returns to inspector if FINAL RESOLUTION ACTION is needed.
  - Process repeats until fully closed out.







NONE FOUND TO BE NON-COMPLIANT

FOUR METRICS ARE SUBSTANTIALLY COMPLIANT

FOUR METRICS ARE CONDITIONALLY COMPLIANT





#### FOUR METRICS ARE **SUBSTANTIALLY** COMPLIANT

- METRIC 7: INSPECTION FREQUENCY ROUTINE HIGHER RISK BRIDGES
- METRIC 11: INSPECTION FREQUENCY FREQUENCY CRITERIA
- METRIC 13: INSPECTION PROCEDURES LOAD RATING \*\*
- METRIC 23: INVENTORY TIMELY UPDATING OF DATA

\*\* UNDER AN EXISTING IMPROVEMENT PLAN



#### TIMELY EXECUTION OF ALL INSPECTIONS

INDOT HAS CONTRACT IN PLACE FOR ON-CALL BRIDGE INSPECTORS.

 EARLIER COORDINATION WHEN LPA CONTRACT COULD BE LATE. GOAL IS TO NOT BE PUNITIVE.

 IF TIMELY N.T.P. CANNOT BE SECURED WITHIN 30-DAYS PRIOR TO THE FIRST CALENDAR DAY OF COMPLIANCE MONTH, INDOT WILL NOTIFY LPA IN ADVANCE THAT THE ON-CALL BRIDGE INSPECTORS WILL BE MOBILIZED.



IF ON-CALL BRIDGE INSPECTORS ARE MOBILIZED:

- INSPECTORS WILL EXECUTE FIELD INSPECTIONS, REPORT CRITICAL FINDINGS, AND COMPLETE REPORTS IN ITAMS ON BEHALF OF INDOT.
- WILL NOT PUBLISH INSPECTION BOOKS, INSPECTION REPORTS, OR THE LPA FRONT-END SUMMARY REPORTS.
- LPA WILL STILL BE BILLED BY INDOT FOR 20% OF THIS WORK.
- CONTRACTS WILL HAVE TO BE AMENDED TO REMOVE THE AFFECTED INSPECTION PHASE.



#### FOUR METRICS ARE *CONDITIONALLY* COMPLIANT

- METRIC 14: INSPECTION PROCEDURES POST OR RESTRICT
- METRIC 15: INSPECTION PROCEDURES BRIDGE FILES
- METRIC 18: INSPECTION PROCEDURES SCOUR
- METRIC 21: INSPECTION PROCEDURES CRITICAL FINDINGS

ALL ARE UNDER EXISTING PLANS OF CORRECTIVE ACTION; COMPLIANT STATUS PENDING FHWA INTERMEDIATE REVIEW.

METRIC 14 PLAN OF CORRECTIVE ACTION STILL ONGOING.



# UPCOMING TRAINING





# UPCOMING TRAINING

- NHI Course 130055 Safety Inspection of In-Service Bridges May 8<sup>th</sup> or May 15<sup>th</sup> (TBD).
- NHI Course 130053 Bridge Inspection Refresher
   Fall 2023
- PURDUE/SBRITE 2-DAY NSTM COURSE
   June 7-8, 2023; Anticipate more dates will be scheduled
- PURDUE/SBRIDGE Implementing Effective Retrofits
   Anticipate 2 Classes this summer; limit 8 attendees per class



# THANK YOU!



