FHWA SNBI Update

Bridge Management User Group Meeting
September 17, 2025
Long Beach, CA

U.S. Department of Transportation
Federal Highway Administration
Office of Infrastructure

Outline

- Implementation Status
- Errata #1 (posted)
- Other clarifications and corrections under consideration
- Questions

Implementation Status

Timeline (from Memo Implementation of the Specifications for the National Bridge Inventory)

Target Date	Action
May 2022	NBIS and SNBI published
July 2022	FHWA publishes Data Crosswalk
October 2022	FHWA publishes Data Submittal Schema and Data Submittal Validation Logic (Initial Version)
April 2023	Transition Tool is made available online
October 2024	FHWA makes NBI NextGen available online for data validation only
March 15, 2025	Last NBI data submittal in accordance with 1995 Coding Guide
January 1, 2026	**Last date to begin** verification of transitioned data and collection of SNBI-based data for inspected bridges – Agencies may elect to begin SNBI-based data collection and verification earlier to meet the March 15, 2028, deadline for submittal of a complete SNBI-based NBI dataset
January 1, 2026	FHWA makes NBI NextGen available for Data Submittals

Implementation Schedule

Timeline (cont.)

March 15, 2026	First SNBI-based NBI data submittal – Transitioned/Hybrid Dataset – At a minimum, all bridges submitted with transitioned data except for specified fields required to manage FHWA programs, which shall be collected or verified in accordance with the SNBI – Continue verification of transitioned data and collection of SNBI-based data
June 2026	Transition Tool sunsets
March 15, 2027	Second SNBI-based NBI data submittal – Transitioned/Hybrid Dataset – Continue verification of transitioned data and collection of SNBI-based data
March 15, 2028	Third SNBI-based NBI data submittal – 100% populated and verified – No temporary codes permitted – First complete SNBI-based dataset with collected and verified SNBI-based data for all bridges

Resources

- https://www.fhwa.dot.gov/bridge/nbi.cfm
  - FHWA Data Transition Logic (crosswalk)
    - Mapping between items and codes of the Coding Guide and SNBI
  - Data transition tool
  - Data submittal schema
  - Data submittal validation logic (part A and B)
  - Errata #1
- FHWA Training
  - 29 deliveries to date (24 that were 2.5 day)
  - 14 scheduled deliveries
  - Scheduling - contact local FHWA Division Bridge Engineer

Resources

- In Development
  - Online data submittal checker
  - New NBI/NTI System
  - Further SNBI clarifications

Errata #1

- Errata is in response to questions asking for clarification or prompting correction.
- Shown in redline (strikeout and underline).
- Will not become official until an update occurs, by future rulemaking action, to the SNBI reference in 23 CFR Subpart C - National Bridge Inspections Standards §650.317 Incorporation by Reference.
- FHWA data submittal and acceptance procedures will be adapted to receive data that is reported in accordance with the SNBI and errata beginning in 2026.

Errata #1

- More significant effects:
  - Latitude and Longitude items
  - Protective system inventory items
  - Controlling Legal Load Rating Factor item
  - Routine Permit Loads item
  - Load Evaluation & Posting items
  - Approach Roadway Alignment item

Errata #1

- B.L.05 Latitude and B.L.06 Longitude:
  - Changed from report at location of Linear Referencing System mile point to report at location following agency procedures.

Latitude		
Format N (9,6)	Frequency I	Item ID B.L.05
Specification		Commentary
Report the latitude of the bridge in decimal degrees at the location of the bridge following agency procedures. Report a negative sign when the bridge is in the southern hemisphere. ~~Report the latitude at the same location as the LRS mile point reported for Item B.H.07 *(LRS Mile Point)*. If the location of the LRS mile point is not known, report the latitude at the location of the bridge following agency procedures.~~		Mapping of bridges by FHWA will assume that the reported value is based on World Geodetic System 1984. The format accommodates reporting a negative sign which is counted as a digit. FHWA will adjust the polarity when it is incorrectly reported. The reported value does not need to be at the same location as the LRS mile point reported in Item B.H.07 (*LRS Mile Point*). LRS bridge mile point locations occurring on a chorded shape file created using only roadway mile points do not always correspond with the true latitude of a bridge.~~Values reported are assumed to be for the appropriate hemisphere and are to be consistent with LRS data that uses the North American Datum of 1983.~~ ~~When available, HPMS data should be used to update NBI items values.~~
Examples		

Errata #1

- Protective system inventory items
  - B.SP.07 Span Protective System, B.SP.11 Deck Protective System, B.SP.12 Deck Reinforcing Protective System, B.SB.05 Substructure Protective System, & B.SB.07 Foundation Protective System.
  - Expanded and revised coding options that provide more consistency across the similar items.
    - All now contain code U – unknown.
    - All applicable items now contain coding options for hot dip galvanizing, metalizing/thermal spray, and timber preservative.

Errata #1

- Subsection on Loads and Load Rating
  - B.LR.07 Controlling Legal Load Rating Factor
    - Clarification to report the rating factor representing an unrestricted operation; do not report a rating factor representing reduced force effects from imposed restrictions (e.g. number of lanes, number of trucks, speed, etc.).
    - Clarification describing when the rating factor for a design load model can be reported in lieu of a legal load model.

Errata #1

Subsection on Loads and Load Rating cont.

- B.LR.08 Routine Permit Loads
  - Clarification denoting that the codes relate to all routine permit loads approved for the route segment, not routine permits approved for various locations throughout the State.

Code	Description
A	Bridge carries routine permit loads. Load capacity is adequate for all routine permit loads approved for the route segment; no routine permit loads are restricted.
B	Bridge carries routine permit loads. Load capacity is adequate for some routine permit loads approved for the route segment, but some routine permit loads are restricted.
C	Bridge does not carry routine permit loads. Load capacity is inadequate for all routine permit loads approved for the route segment. Routine permit loads are restricted from the bridge.
N	Bridge does not carry routine permit loads. Routine permit loads are not approved for the route segment. ~~Agency does not issue routine permits.~~

Errata #1

- Subsection on Load Evaluation and Posting
  - Affected items:
    - B.EP.01 Legal Load Configuration
    - B.EP.02 Legal Load Rating Factor
    - B.EP.03 Posting Type
    - B.EP.04 Posting value

Errata #1

- B.EP.01 Legal Load Configuration
  - Item format and codes revised to accommodate reporting State-defined legal load rating vehicles.
  - State reports a consistent code (up to 15 characters) for each State-defined legal load rating vehicle,
  - Codes for AASHTO and FHWA load rating vehicles are reported only when the exact configuration (# axles, spacing, & loads) was rated.

Code	Description
3	AASHTO Type 3
3S2	AASHTO Type 3S2
3-3	AASHTO Type 3-3
SU4	AASHTO SU4 truck
SU5	AASHTO SU5 truck
SU6	AASHTO SU6 truck
SU7	AASHTO SU7 truck
NRL	AASHTO Notional Rating Load
EV2	FHWA Type EV2 emergency vehicle
EV3	FHWA Type EV3 emergency vehicle
S#	State-defined legal load
F#	Federal-defined legal load
T#	Tribal-defined legal load

Errata #1

- B.EP.02 Legal Load Rating Factor
  - Clarification to report the rating factor representing an unrestricted operation; do not report a rating factor representing reduced force effects from imposed restrictions (e.g. number of lanes, number of trucks, speed, etc.).
  - Clarification that legal load rating factors do not need to be reported when legal loads (including emergency vehicles for applicable bridges) are enveloped by a design load model and corresponding acceptable rating factor.
  - Clarification when screening-level legal load models may have rating factors reported in place of enveloped legal loads.

Errata #1

- B.EP.04 Posting Type & B.EP.05 Posting Value
  - Revised item formats from one-to-one with legal load configuration to many-to-one with legal load configuration.
  - Allows for reporting multiple posting types and values that affect the same legal load configuration (e.g. gross + axle limit).

Report multiple codes in the order shown separated by pipe (|) delimiters.

Code	Description
G	Gross Load
A	Single Axle Load
D	Tandem Axle Load
T	Truck Load
C	No commercial vehicles
S	Speed reduction
L	Number of lanes restricted
V	Number of vehicles restricted
X	Other

Errata #1

- B.AP.01 Approach Roadway Alignment
  - Clarification making it clear whether posted or operating speed are used:
    - Posted speed at bridge is compared to posted speed of the general highway segment.
    - Operating speed at bridge used in place of posted speed at bridge when posting not present at bridge.
    - Operating speed of the general highway segment used in place of posted speed of the general highway segment when posting not present on the general highway segment.

Other Clarifications & Corrections Under Consideration

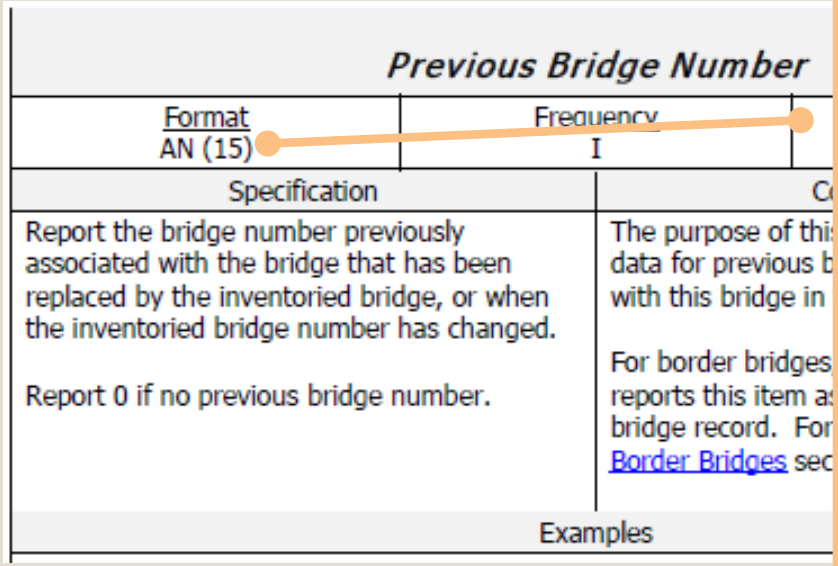
- FHWA continues to receive questions and comments asking for further clarification or correction.
- Based on the feedback gathered so far, the following slides represent some of the topics that are under consideration.
- We would like your feedback on these topics!!!

Other Clarifications & Corrections Under Consideration

- Some topics under consideration include:
  - *Previous Bridge Number* item
  - *Number of Beam Lines* item
  - Material items - codes for ultra-high performance concrete
  - Protective system inventory items
  - *NBIS Bridge Length* item
  - Bridge width items
  - *Bypass Detour Length* item
  - *Load Rating Method* item

Under Consideration

- *Previous Bridge Number*



Previous Bridge Number

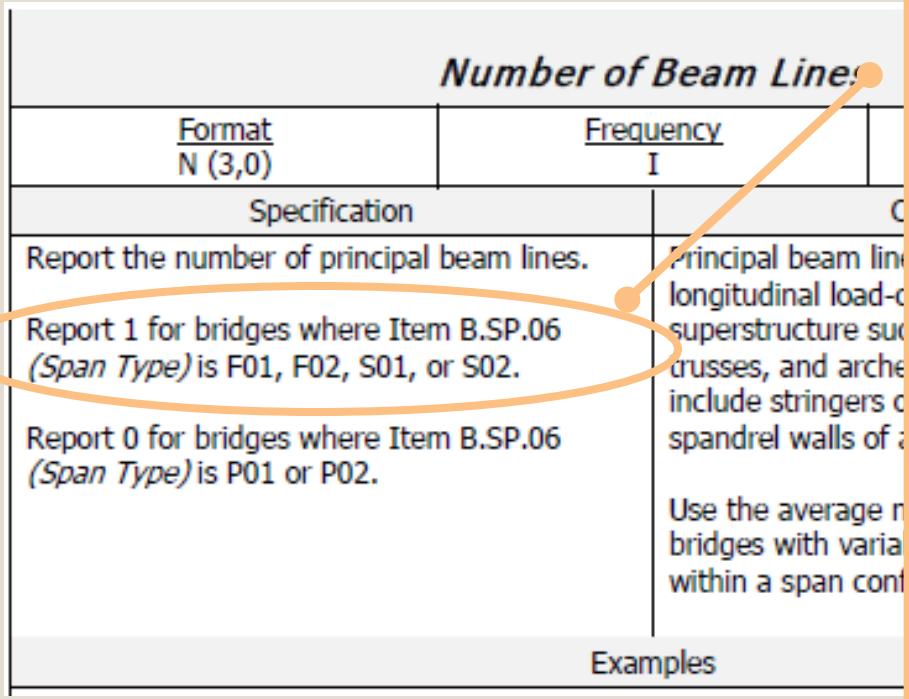
Format	Frequency
AN (15)	I

Specification	C
Report the bridge number previously associated with the bridge that has been replaced by the inventoried bridge, or when the inventoried bridge number has changed. Report 0 if no previous bridge number.	The purpose of thi data for previous b with this bridge in For border bridges reports this item a bridge record. For Border Bridges sec
Examples	

Accommodate the reporting of multiple previous bridge numbers separated by pipe delimiters.

Under Consideration

- *Number of Beam Lines*



Number of Beam Lines		
Format N (3,0)	Frequency I	
Specification		C
Report the number of principal beam lines. Report 1 for bridges where Item B.SP.06 *(Span Type)* is F01, F02, S01, or S02. Report 0 for bridges where Item B.SP.06 *(Span Type)* is P01 or P02.		Principal beam lin longitudinal load-c superstructure suc trusses, and arche include stringers c spandrel walls of a Use the average n bridges with varia within a span conf
Examples		

Clarify that when frames and slabs are comprised of “beam width” adjacent units, report more than 1 beam line.

F01 = frame three-sided
F02 = frame four-sided
S01 = slab solid
S02 = slab voided

Under Consideration

- Material items – accommodate reporting an ultra-high performance concrete type (i.e. add codes):
  - *Span Material* add code C06
  - *Span Protection System* add code E02
  - *Deck Material and Type* add code C06
  - *Wearing Surface* add code C08
  - *Substructure Material* add code C06
  - *Substructure Protection System* add code E02
  - *Foundation Protection System* add code E02

Under Consideration

- Protective system inventory items
  - *Span Protective System*
  - *Wearing Surface*
  - *Deck Protective System*
  - *Deck Reinforcing Protective System*
  - *Substructure Protective System*
  - *Foundation Protective System*
- When to report a code other than 0 (none)?

Span Protective System

Format	Frequency	Item ID
AN (3)	I	B.SP.07

Specification	Commentary
Report the span protective system using one of the following codes:	Code this item consistent with the material reported for Item B.SP.04 *(Span Material)*.
Code Description 0 None A01 Admixture – internally sealed A02 Admixture – low permeability A03 Admixture – polymer impregnated A04 Admixture – corrosion inhibitor A05 Admixture – ASR inhibitor AX Admixture – other C01 Coating – paint C02 Coating – sealer C03 Coating – hot dip galvanizing C04 Coating – metalizing/thermal spray CX Coating – other E01 Encasement – concrete EX Encasement – other M01 Membrane – built-up M02 Membrane – sheet M03 Membrane – liquid applied MU Membrane – unknown MX Membrane – other P01 Patina – uncoated weathering steel	In cases where the span configuration may have a combination of protective systems, use the code for the predominant protective system based on protected area. In cases where multiple systems protect the same area, use the code for the outermost protective layer. Use code 0 when the span is unprotected. Use code 0 when unprotected steels either never were coated or currently have no signs of coating systems, and have no protective systems such as cathodic protection or weathering chemistry. Non-protective anti-graffiti and aesthetic coatings are not considered when coding this item. Use code C01 for weathering steel that has been painted. Use code C02 for sealers such as silanes, siloxanes, linseed oils, etc. Use code P01 only for weathering grades of steel. For timber, use code T01 for oil-based or water-borne timber preservatives. Use code C01 for paints and stains. Use the appropriate code for span members under fill that have a protective system.
Codes continued next page.	

Under Consideration

- Protective system inventory items
  - Clarify that in cases where only some areas are protected, report a protective system when it protects against the primary deterioration modes and expected locations of primary deterioration.
  - Examples:
    - Span Protective System: Concrete girders with sealed ends beneath the deck joints and sealed fascias. These are the areas of the span configuration that are expected deteriorate at a much faster rate than other areas. Report C02.

Under Consideration

- Protective system inventory items (cont.)
  - Examples:
    - Deck Protective System: Bridge deck with only crack sealing. The crack sealing does not protect against all expected locations of deterioration. Report 0.
    - Deck Reinforcing Protective System: Bridge deck with black reinforcing bars that has patching. Patched areas have passive cathodic protection to extend the patch life and limit corrosion in the halo area around the patch. The cathodic protection does not protect against all expected locations of deterioration. Report 0.
    - Substructure Protective System: Abutment backwalls and seats are epoxy coated. All locations where primary deterioration is expected to occur are protected. Report C01.

Under Consideration

- *NBIS Bridge Length*

Add that for measurements that are greater than 20.00 feet and less than 20.10 feet round up to 20.1 feet.

NBIS Bridge Length

Format	Frequency	Item ID
N (7,1)	I	B.G.01

Specification	Commentary
Report the NBIS bridge length to the nearest tenth of a foot measured along the roadway centerline. Measure along the roadway centerline between undercopings of abutments or spring lines of arches. For filled or closed spandrel arches, measure along the roadway centerline from inside faces of exterior spring lines. For other bridges under fill, measure along the roadway centerline from inside faces of exterior walls; this includes multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening. Vaulted abutments and enclosed spans or sections are included in the NBIS bridge length. Report the field measured NBIS bridge length when Item B.G.02 *(Total Bridge Length)* is less than 30 ft.	NBIS bridge definition: A structure, including supports, erected over a depression or an obstruction, such as water, highway, or railway, and having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet between undercopings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes; it includes multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening. (23 CFR 650.305) Structures that meet the NBIS bridge definition, and NBIS applicability in 23 CFR 650.303, are reported to FHWA. The roadway centerline is the physical center of the portion of the roadway for the movement of vehicles, regardless of striping, and exclusive of shoulders. The length for curved structures would be measured along the curved centerline. When item B.G.02 *(Total Bridge Length)* is greater than 30.0 feet the value for this item may be estimated from plans or drawings, or estimated using the observed difference between items B.G.02 *(Total Bridge Length)* or B.G.03 *(Maximum Span Length)* and the NBIS bridge definition.

Under Consideration

- Bridge width items
  - *Bridge Width Curb-to-Curb* (Primary Dataset)
  - *Left Curb or Sidewalk Width* (Primary Dataset)
  - *Right Curb or Sidewalk Width* (Primary Dataset)
  - *Highway Maximum Usable Surface Width* (Highway Features Dataset)

- *Bridge Width Curb-to-Curb* clarifications:
  - Exclude sidewalks (mountable and non-mountable).
  - Exclude areas dedicated to non-vehicular uses (pedestrian, bicycle, parking, train, etc.).
  - Exclude non-mountable areas.
  - Correlates "closely" with the width assigned to routine vehicular functionality (lane and safety shoulder or offsets).

Under Consideration

- *Left Curb or Sidewalk Width & Right Curb or Sidewalk Width* clarifications:
  - Correlates with the width available for pedestrians
  - Include mountable and non-mountable areas designated for pedestrian.

- *Highway Maximum Usable Surface Width* clarifications:
  - Correlates "closely" with the width available for non-routine vehicular use (e.g. permit, military).
  - Exclude sidewalks only when non-mountable.
  - Exclude areas dedicated to non-vehicular uses only when non-mountable.
  - Exclude non-mountable areas (subtract or don't measure beyond).

Under Consideration

- *Bypass Detour Length*

Bypass Detour Length		
Format N (3,0)	Frequency I	Item ID B.H.17
Specification	Commentary	
Report the length to the nearest mile of the total additional travel for a vehicle to bypass the bridge for the highway feature reported in Item B.F.01 *(Feature Type)*, that passes below or is carried on the bridge. Report 999 where a detour does not exist. Report 0 for available ground level bypass. Report 1 when the highway feature is carried by a bridge, is not at an interchange, and a parallel bridge can be used as a temporary bypass with a reasonable amount of crossover grading.	Determine bypass detour length by evaluating the potential to move traffic, including military vehicles and trucks, around bridges. • Avoid detour routes that have load, height, or capacity limitations unacceptable for the additional traffic detoured onto them. • Consider using the parallel bridge of dual bridges or temporary culverts if emergency detours can be constructed with a reasonable amount of grading within the existing right-of-way. • Consider using ramps and/or frontage roads in interchanges. • Review plans for strategic bridge detour routes.	
Examples		

Clarify that when there is more than one highway feature below the bridge, it may be assumed that one highway feature will not serve as a bypass detour for another highway feature. This assumption does not need to be applied to bridges for which a bridge deficiency or problem is not expected to affect all highway features below the bridge.

Under Consideration

- *Load Rating Method*

Clarify that the method reported here is what was used to calculate the load rating for B.LR.05 Inventory Load Rating Factor and B.LR.06 Operating Load Rating Factor.

Load Rating Method

Format	Frequency	Item ID
AN (4)	I	B.LR.04

Specification	Commentary
Report the method used to calculate the load rating using one of the following codes.	When different portions of a bridge are load rated using different methods, report the rating method associated with the controlling rating factor.
Code — Description LFR — Load Factor Rating ASR — Allowable Stress Rating LRFR — Load and Resistance Factor Rating LT — Load Testing AR — Assigned Rating EJ — Field evaluation and documented engineering judgment N — No rating analysis or evaluation has been performed	For information on applicable load rating methods, refer to the October 30, 2006 FHWA memorandum at: http://www.fhwa.dot.gov/bridge/nbis/103006.cfm. For information on using code AR, refer to the September 29, 2011 FHWA memorandum at: http://www.fhwa.dot.gov/bridge/110929.cfm For information on using code EJ, refer to the February 2, 2011 FHWA memorandum at: http://www.fhwa.dot.gov/bridge/110202.cfm

Example

Closing

- Upcoming:
  - Online data submittal checker
  - Last Coding Guide based submittal due March 15, 2025
- FHWA Training
  - To schedule contact local FHWA Division Bridge Engineer

Questions?

- Question box: NBIS_SNBI_Questions@dot.gov