

Specifications for the National Bridge Inventory Errata #2

AASHTO BRIDGE MANAGEMENT USER GROUP MEETING
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Disclaimer

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Errata #2



- 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 Inspection 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.



Errata #2



- Among others, errata revisions include:
 - *Previous Bridge Number* item
 - Material items
 - *Span Continuity* item
 - Protective system inventory items
 - *NBIS Bridge Length* and *Total Bridge Length* items
 - Bridge width items
 - Routes Datasets for ramps
 - Roadway classifications for ramps
 - *Bypass Detour Length* item
 - *Load Rating Method* item
 - *Load Posting Status* item
 - Legal load rating factor items



Errata #2

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- ***B.ID.03 Previous Bridge Number:***
 - Item format (number of characters) and text revised to allow for reporting multiple previous numbers.

<i>Previous Bridge Number</i>		
<u>Format</u> AN (30045)	<u>Frequency</u> I	<u>Item ID</u> B.ID.03
<u>Specification</u>		<u>Commentary</u>
Report the bridge number previously associated with the bridge that has been replaced by the inventoried bridge, or when the inventoried bridge number has changed. <u>Report multiple previous bridge numbers separated by pipe () delimiters.</u> Report 0 if no previous bridge number.		The purpose of this item is to retain a link to data for previous bridge numbers associated with this bridge in the NBI. <u>Multiple previous bridge numbers may be reported when a bridge has more than one previous bridge number, e.g., multiple bridges were replaced with or combined into one bridge, a bridge has been replaced multiple times and there is a record of the numbers, etc.</u> For border bridges, the Neighboring State reports this item as part of their abbreviated bridge record. For more information, see the Border Bridges section of this document.



Errata #2

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- Material Items

- Added codes for ultra-high performance concrete. Added codes do not affect existing codes.
 - ✦ *B.SP.04 Span Material* - new code C06
 - ✦ *B.SP.07 Span Protective System* - new code E02
 - ✦ *B.SP.09 Deck Material and Type* - new code C06
 - ✦ *B.SP.10 Wearing Surface* - new code C08
 - ✦ *B.SB.03 Substructure Material* - new code C06
 - ✦ *B.SB.05 Substructure Protective System* - new code E02
 - ✦ *B.SB.07 Foundation Protective System* - new code E02



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- *B.SP.05 Span Continuity:*
 - Added commentary clarifying that code 7 (buried) trumps all other codes.
 - Removed code 7 (buried) commentary that says use this code for structures that rely on soil structure interaction.

Commentary
This item captures the continuity of the span(s) in the configuration. Use code 2 for bridges designed continuous for permanent (dead) loads and live loads. Also, use code 2 for cable stayed and suspension bridges, and for multi-span arches. Use code 3 for bridges designed as simple spans for permanent (dead) loads and continuous for live loads. When it is unknown if the superstructure was designed as continuous for live loads, code this item consistent with the assumption used in the load rating calculations. Use code 6 for three-sided and four-sided frames that are not buried. Use code 7 for <u>bridge and culvert span configurations buried beneath embankment, fill, or native material regardless if the span configuration is also described by another code</u>pipe-culverts and other structures that rely on soil structure interaction to support vertical loads.



Errata #2

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- 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)?

<i>Span Protective System</i>		
Format AN (3)	Frequency I	Item ID 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 (<i>Span Material</i>).
<u>Code</u>	<u>Description</u>	
0	None	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.
A01	Admixture – internally sealed	Use code 0 when the span is unprotected.
A02	Admixture – low permeability	
A03	Admixture – polymer impregnated	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.
A04	Admixture – corrosion inhibitor	
A05	Admixture – ASR inhibitor	Non-protective anti-graffiti and aesthetic coatings are not considered when coding this item.
AX	Admixture – other	
C01	Coating – paint	Use code C01 for weathering steel that has been painted.
C02	Coating – sealer	
C03	Coating – hot dip galvanizing	Use code C02 for sealers such as silanes, siloxanes, linseed oils, etc.
C04	Coating – metalizing/thermal spray	
CX	Coating – other	Use code P01 only for weathering grades of steel.
E01	Encasement – concrete	
EX	Encasement – other	For timber, use code T01 for oil-based or water-borne timber preservatives. Use code C01 for paints and stains.
M01	Membrane – built-up	
M02	Membrane – sheet	Use the appropriate code for span members under fill that have a protective system.
M03	Membrane – liquid applied	
MU	Membrane – unknown	
MX	Membrane – other	
P01	Patina – uncoated weathering steel	
Codes continued next page.		

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- Protective system inventory items
 - Clarifies that in cases when only some areas are protected, report a protective system when it protects against the primary drivers, modes, and expected locations of deterioration, otherwise report 0 (none).
 - Primary deterioration is that which based on agency experience will primarily control the service life of the subject item.



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- Protective system inventory items
 - Examples:
 - ✦ *Span Protective System:*
 - Concrete girders with sealed ends beneath deck joints and sealed fascia girders.
 - Person reporting this item judges that these are the locations where primary deterioration is expected to occur.
 - Report C02 (coating – sealer).



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- Protective system inventory items
 - Examples:
 - ✦ *Deck Protective System:*
 - Deck with only crack sealing.
 - Report 0 (none). Protects against accelerated deterioration at the crack defects. Does not protect all locations where primary deterioration is expected to occur.



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- Protective system inventory items

- Examples:

- ✦ *Deck Reinforcing Protective System:*

- Deck with black reinforcing bars, that has patching. Patched areas have passive cathodic protection to extend patch life and limit corrosion in the area around the patch.
- Report 0 (none). The cathodic protection does not protect against all expected locations of primary deterioration.



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- Protective system inventory items

- Examples:

- ✦ *Substructure Protection System:*

- Abutment backwalls and seats are epoxy coated.
- Person reporting this item judges that these are the locations where primary deterioration is expected to occur on the abutment substructure configuration.
- Report C01 (coating – paint).



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- *B.G.01 NBIS Bridge Length*
 - Clarifies that measurements >20.00 ft and <20.10 ft are rounded up to 20.1 (normal rounding rules do not apply).
 - Bridges subject to the NBIS and reportable to the NBI are > 20.00 ft.
- *B.G.02 Total Bridge Length*
 - Same errata

<i>NBIS Bridge Length</i>	
<u>Format</u> N (7,1)	<u>Frequency</u> I
Specification	
Report the NBIS bridge length to the nearest tenth of a foot measured along the roadway centerline. <u>For measurements that are greater than 20.00 feet and less than 20.10 feet round up to 20.1 feet.</u>	NBIS bridge de supports, erec obstruction, su railway, and h carrying traffic having an ope of the roadway undercopings arches, or extr multiple boxes
Measure along the roadway centerline between undercopings of abutments or spring lines of arches.	



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- *B.G.06 Bridge Width Curb-to-Curb*
 - Clarifies that in addition to sidewalk, width that is exclusively assigned to non-vehicular service is excluded from the measurement.
 - ✦ Examples of excluded width:
 - sidewalk (mountable or non-mountable)
 - dedicated bike lanes
 - full time parking lanes
 - non-mountable medians and areas
 - structurally inadequate shoulders on buried bridges



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- *B.G.06 Bridge Width Curb-to-Curb*
 - This item correlates closely with the width assigned to routine vehicular use and functionality (i.e., lanes and shoulders or safety offsets) plus mountable or flush areas that separates lanes or separates lanes from other service types.



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- *B.G.07 Left Curb or Sidewalk Width and B.G.08 Left Curb or Sidewalk Width*
 - Clarifies that in addition to curb or sidewalk, include dedicated pathways that are either non-mountable, mountable, or flush with the deck.
 - Shoulders and non-dedicated pathways are excluded from this measurement although they may be used by pedestrians or bicyclists.
 - Correlates with the width available exclusively for pedestrian and bicycle service whether mountable or non-mountable.



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- *B.H.16 Highway Maximum Usable Surface Width*
 - Clarifies that the measurement includes mountable and flush width beyond the normal travel way.
 - Examples:
 - ✦ mountable sidewalks
 - ✦ mountable or flush pathways dedicated for pedestrian, bicycle, or other non-vehicular modes
 - ✦ full time parking lanes
 - ✦ structurally adequate shoulders on buried bridges
 - ✦ mountable or flush medians and areas
 - Exclude non-mountable areas (subtract or don't measure beyond)



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- *B.H.16 Highway Maximum Usable Surface Width*
 - This item correlates closely with the maximum width that may be available for non-routine vehicular use (e.g., military loads, wide permit loads, etc.).



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- Routes Datasets for ramps
 - When to report route designations, and accompanying Routes Datasets, for ramps?

Route Designation						
<u>Format</u> AN (3)	<u>Frequency</u> I	<u>Item ID</u> B.RT.01				
Specification		Commentary				
Report the assigned route designation for the highway reported in Item B.F.01 (<i>Feature Type</i>) using the following code.		This item captures how routes that share the reported highway feature are designated.				
<table><tr><td><u>Code</u></td><td><u>Description</u></td></tr><tr><td>R##</td><td>Unique Route Designation</td></tr></table>		<u>Code</u>	<u>Description</u>	R##	Unique Route Designation	Each highway feature has at least one route designation.
<u>Code</u>	<u>Description</u>					
R##	Unique Route Designation					
Replace the ## characters in the above code with sequential numbers, with leading zeros.		Typically, the route with the highest-class route type is listed first, using the hierarchy shown in Item B.RT.04 (<i>Route Type</i>). An				



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- For bridge ramps (bridge carries only ramp lanes), report a separate Route Designation for each route that is connected to the ramp.
- For ramp lanes that are assigned their own Highway Feature designation because they are divided from mainline, report a separate Route Designation for each route that is connected to the ramp lanes.

Route Designation

Frequency I	Item ID B.RT.01
Commentary	
tion for the Feature	This item captures how routes that share the reported highway feature are designated.
	Each highway feature has at least one route designation.
n above code ding zeros, ignation g., R01,	Typically, the route with the highest-class route type is listed first, using the hierarchy shown in Item B.RT.04 (<i>Route Type</i>). An interstate is considered the highest-class route.
s, report e number. without route ation.	<u>For bridge ramps (a bridge that carries only ramp lanes), and ramp lanes that are assigned their own Highway feature(s) because they are divided from mainline, report a separate Route Designation for each route that is connected to the reported Highway feature(s) carried by the bridge ramp or ramp lanes. The route designations for the connected routes are reported with the Highway feature(s) carried by the bridge ramp or ramp lanes. A gore area (striped, grass, barrier, etc.) that separates ramp lanes from mainline is not cause for characterizing the ramp lanes as being divided from mainline.</u>
	<u>For ramp lanes that are included in a reported mainline Highway feature(s) because they are not divided from mainline, do not report a separate Route Designation for each route that is connected by the ramp lanes.</u>



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- A gore area (striped, grass, barriers, etc.) that separates ramp lanes from mainline is not cause for characterizing the ramp lanes as being divided from mainline.

Route Designation	
Frequency I	Item ID B.RT.01
	Commentary
tion for the Feature	This item captures how routes that share the reported highway feature are designated.
	Each highway feature has at least one route designation.
n	Typically, the route with the highest-class route type is listed first, using the hierarchy shown in Item B.RT.04 (<i>Route Type</i>). An interstate is considered the highest-class route.
above code ding zeros, ignation g., R01,	<u>For bridge ramps (a bridge that carries only ramp lanes), and ramp lanes that are assigned their own Highway feature(s) because they are divided from mainline, report a separate Route Designation for each route that is connected to the reported Highway feature(s) carried by the bridge ramp or ramp lanes. The route designations for the connected routes are reported with the Highway feature(s) carried by the bridge ramp or ramp lanes. A gore area (striped, grass, barrier, etc.) that separates ramp lanes from mainline is not cause for characterizing the ramp lanes as being divided from mainline.</u>
s, report e number. without route ation.	<u>For ramp lanes that are included in a reported mainline Highway feature(s) because they are not divided from mainline, do not report a separate Route Designation for each route that is connected by the ramp lanes.</u>



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- Roadway classifications for ramps
 - Applies to bridge ramps (a bridge that carries only ramp lanes), and ramp lanes that are assigned their own Highway Feature(s) because they are divided from mainline.
 - The Highway feature carried by the bridge ramp, or the ramp lanes divided by mainline, includes roadway classification items.
 - Which of the connected routes is used to report roadway classification items?



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- Roadway classifications for ramps

- *B.H.01 Functional Classification*

- ✦ Report the functional classification of the connected route that is highest classification.

Report the functional classification for the highway feature reported in Item B.F.01 (*Feature Type*) using one of the following codes.

<u>Code</u>	<u>Description</u>
1	Interstate
2	Principal Arterial – Other Freeways and Expressways
3	Principal Arterial – Other
4	Minor Arterial
5	Major Collector
6	Minor Collector
7	Local



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- Roadway classifications for ramps
 - *B.H.03 NHS Designation*
 - ✦ Report code Y (NHS) if at least one connected route is NHS.

Specification	
Report the NHS designation for the highway feature reported in Item B.F.01 (<i>Feature Type</i>), using one of the following codes.	
<u>Code</u>	<u>Description</u>
N	Non-NHS
Y	NHS



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- Roadway classifications for ramps
 - *B.H.04 National Highway Freight Network*
 - ✦ Report the designation of the connected route that is highest designation following the hierarchy in the code descriptions.

Specification	
Report the National Highway Freight Network (NHFN) designation for the highway feature reported in Item B.F.01 (<i>Feature Type</i>), using one of the following codes.	
<u>Code</u>	<u>Description</u>
1	Primary Highway Freight System
2	Interstate portions not on the Primary Highway Freight System
3	Critical Rural Freight Corridor
4	Critical Urban Freight Corridor
N	Not on the NHFN



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- Roadway classifications for ramps
 - *B.H.05 STRAHNET Designation*
 - ✦ Report code 1 or 2 only when the ramp connects multiple STRAHNET or STRAHNET Connector routes. Report the highest designation, STRAHNET route being the highest.

Specification

Report the Strategic Highway Network (STRAHNET) designation for the highway feature reported in Item B.F.01 (*Feature Type*), using one of the following codes.

<u>Code</u>	<u>Description</u>
1	STRAHNET route
2	STRAHNET Connector route
N	Not a STRAHNET route



Errata #2

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- *B.H.17 Bypass Detour Length*
 - Clarifies 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.

Commentary
Determine bypass detour length by evaluating the potential to move traffic, including military vehicles and trucks, around bridges. • <u>Consider through traffic only, not the detour length of secondary traffic movements such as ramp lanes that may be included in a mainline Highway feature.</u> • 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. <u>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 on which a bridge problem is not expected to affect all highway features below the bridge, e.g., when the Highway features are widely separated and under different spans that are not within the same set of continuous spans.</u>



Errata #2

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- ***B.LR.04 Load Rating Method***

- Clarifies that this item reflects the load rating method used for design load.
- This item will not reflect the load rating method used for posting evaluation when a different method is used.

<i>Load Rating Method</i>	
<u>Format</u> AN (4)	<u>Frequency</u> I
<u>Item ID</u> B.LR.04	
Specification	Commentary
Report the method used to calculate the load rating <u>for the standard AASHTO HS-20 or HL-93 loading, reported for B.LR.05 (<i>Inventory Load Rating Factor</i>) and B.LR.06 (<i>Operating Load Rating Factor</i>), using one of the following codes.</u>	<u>This item will not reflect the method used to calculate B.LR.07 (<i>Controlling Legal Load Rating Factor</i>) and the Posting Evaluation Data Set (reference Subsection 5.3 Load Evaluation and Posting) when a different method is used to evaluate legal load configurations.</u>



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- *B.LR.05 Inventory Load Rating Factor and B.LR.06 Operating Load Rating Factor*
 - Clarifies that these items report the strength and service limit states that are specified for design load in the AASHTO Manual for Bridge Evaluation (MBE). The optional fatigue limit state check is excluded.
 - ✦ Confirms alignment with the MBE.
 - Report 99.99 when the bridge is under sufficient fill that live load effect is determined to be negligible, therefore the bridge was not rated for live load.



Errata #2

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- *B.LR.07 Controlling Legal Load Rating Factor and B.EP.02 Legal Load Rating Factor*
 - Clarifies that these items report the strength and service limit states that are specified for legal load in the MBE.
 - ✦ Confirms alignment with the MBE.
 - ✦ Report MBE optional service limit state or serviceability checks only when the agency adopts these checks as mandatory for determining load posting needs and posting values.
 - Report 99.99 when the bridge is under sufficient fill that live load effect is determined to be negligible, therefore the bridge was not rated for live load.



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- *B.PS.01 Load Posting Status*
 - Clarifies that “supported bridge” is reported without consideration whether the supports or shoring are considered temporary.

Table 15. Load Posting Status Codes.

	No restriction			Posted or restricted				Closed
	New	Open	Needs Action	Weight	Other	Needs Reduction	Missing	
Permanent <u>Bridge</u>	N	PO	PA	PP	PR	PD	PM	C
Temporary <u>Bridge</u>		TO	TA	TP	TR	TD	TM	C
Supported <u>Bridge</u>		SO	SA	SP	SR	SD	SM	C

Terms:

Permanent Bridge (P) – Permanent bridge in place ~~with no temporary supports.~~

Temporary Bridge (T) – Temporary bridge in place to carry traffic while the permanent bridge is closed and awaiting repair, rehabilitation, or replacement.

Supported Bridge (S) – Bridge with ~~temporary~~ shoring, supports, repairs, or supplemental members in place to keep the bridge open. ~~pending the completion of active or imminent repair, or replacement projects.~~



Questions or Feedback?

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- Question or Feedback box:
NBIS_SNBI_Questions@dot.gov

