Iowa DOT guidance on the *Specifications for National Bridge Inventory (SNBI)*, March 2022 edition

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This document is intended to supplement the FHWA *Specifications for the National Bridge Inventory (SNBI), March 2022 edition.* It describes the interpretation of the SNBI used in coding bridges in Iowa. The intent is to assist bridge inspection personnel in understanding the SNBI and provide a consistent interpretation across the state.

B.ID.XX – Identification

B.ID.01 – The FHWA number, assigned by Research and Analytics Bureau.

B.ID.02 – For state bridges, use maintenance number. For local systems bridges, use local agency identification code.

B.ID.03 – Input previous FHWA number where appropriate. Code "0" if there was not a previous bridge at this location.

B.L.XX – Location

B.L.02 – Use county code.

B.L.03 – If the bridge is within the corporate limits of a town or city, select the correct entity. Code "None" if the bridge is not in a town or city.

B.L.07 – A value of "N" is required if not a border bridge

B.L.08, B.L.09 – Leave blank unless it is a border bridge.

B.CL.XX – Classification

B.CL.06 – There are no emergency routes in Iowa, always code "N".

B.SP.XX – Span and Material

Aesthetic coatings are not protective and are coded only if the entire element is protected (UNO).

For protective coatings, the outermost protective coating should be the coded type. For example, painted galvanized steel should be coded "C01- Coating - Paint".

B.SP.01 – If bridge widenings or culvert extension on both sides/ends occurred at the same time/project; code as one widening, W## or extension, V##. If widenings or extensions occurred at separate times/projects; code as separate widenings, W## or extension, V##. Always report a bridge widening,

even if similar construction to original structure. Do NOT report a culvert extension unless it has dissimilar construction to original structure.

B.SP.05 – Multi-span PPCB bridges should be coded "3 – Continuous for live loads only."

Three- or four-sided box culverts with no fill are coded "6 – Frame"

Buried pipes and culverts, regardless of material, are coded "7 – Buried"

B.SP.06 – Arch type descriptions:

"A01 – Arch – under fill without spandrel" – An arch that supports a deck directly above the arch. The areas between the lower portions of the arch and the deck are filled with material. This type of bridge relies on the fill material transfer loads from the deck to the arch.
"A02 – Arch – Open spandrel" – An arch that supports a roadway directly above the arch. The areas between the lower portions of the arch and the deck are open. The deck is supported by spandrel columns.
"A03 – Arch – closed spandrel" – An arch that supports a deck directly above the arch. The areas between the lower portions of the arch and the deck are closed. The deck is supported by spandrel walls and possibly by internal spandrel columns. There is a void between the arch and the deck.
"A04 – Arch – through" – An arch bridge where the arch passes above the riding surface of the deck
"A05 – Arch – tied" – An arch bridge where a tie connects the ends of the arch to resist the longitudinal thrust of the arch.

B.SP.08 – Slab bridges should be coded "IM – Integral or monolithic".

Unshored construction is assumed unless shored construction is specified in the plans.

B.SP.08, B.SP.10-13 – Do not report for bridge and culverts under fill and pipes (B.SP.09 = 0).

B.SP.11 – Sealing of barrier rails is not considered a deck protective system.

High performance concrete (HPC) does not have an inherent protective system.

B.SB.XX - Substructure

Aesthetic coatings are not protective and are coded only if the entire element is protected (UNO).

For protective coatings, the outermost protective coating should be the coded type. For example, painted galvanized steel should be coded "C01- Coating - Paint".

These B.SB.XX items are not reported for pipes.

B.SB.01 – If bridge widenings or culvert extension on both sides/ends occurred at the same time/project, code as one widening, W## or extension, V##. If widenings or extensions occurred at separate

times/projects, code as separate widenings, W## or extension, V##. Always report a bridge widening, even if similar construction to original structure. Do NOT report a culvert extension unless it has dissimilar construction to original structure.

B.SB.03 – Bents should be coded based on the cap material.

B.SB.04 – "B03 – Bent – pile" is used for substructure units where piling directly support a pier cap, like the P10A/P10L standards. "B01" and "B02" are not used in Iowa, use "PXX" coding for multi-column piers regardless of footing configuration. Piers are constructed on top of a footing or drilled shaft. A column is less than 10 feet wide. A wall is greater than or equal to 10 feet wide.

Abutments with partial height backwalls supporting the deck are coded "AX – Abutment – other".

Abutments for slab bridges that rest directly on the substructure (which are not integral) are coded "A01- Abutment - Cantilever/Wall" or "A12 – Abutment – Footing or Cap Only".

High/wall abutments are coded "A01 – Abutment – cantilever/wall" regardless of the deck/abutment interaction.

Solid/continuous concrete sheet piling for abutments and piers should be coded "BX – Bent – Other".

Piers with unusual configurations, such as V-piers, are coded "PX – Pier – other".

Multi column piers with crash walls tied to the columns are coded "P04 – Pier – multiple column with web wall". If the crash wall is not tied to the pier, the pier is coded "P03 – Pier – multiple column".

Multi column piers that are widened should be coded based on "connection" with the existing structure. Code "P02 – Pier – Single Column" if the cap is not connected, and code "P03 – Pier – Multiple Column" or "P04 – Pier – Multiple Column with Web Wall" if the cap is connected as applicable.

For culverts, code the end supports as "A01 – Abutment – cantilever/wall" and intermediate supports as "P01 – Pier – wall".

For precast culverts, code each interior line as one pier. For example, a two-barrel culvert has one pier.

B.SB.05 – Code "C02 – Coating sealer" only applies if the entire substructure unit is sealed. For example, a pier cap with only the top of the cap sealed is not coded "C02 – Coating sealer".

B.SB.06 – Bents should be coded based on the pile type.

P10A/P10L piers that have concrete filled pipe pile are coded "P03 – concrete, cast in place".

Precast pile that are not prestressed are coded "PX – Pile – other". This was common for a certain era of P10A piling and should be checked carefully.

For culverts, use codes "F01 – Footing – not on rock", "F02 – Footing – on rock" or "F03 – Footing - on reinforced soil" as appropriate.

Multi column piers with individual drilled shafts under each column should be coded "S02 – Drilled shafts – multiple".

B.SB.07 – Steel pile bents with concrete encasement like the P10A/P10L standards, use code "E01 – Encasement – concrete" for the concrete encasement.

B.RH.X – Roadside Hardware

B.RH.01-02 – Refer to Iowa DOT Bridge Rail Guide for crash-test level for common Iowa rail and transition types.

B.G.XX – Geometry

B.G.01, B.G.02 – B.G.01 and B.G.02 should be the same for culverts.

B.G.06, B.G.09 – B.G.06 and B.G.09 should be the same for culverts. For culverts, use the distance between headwalls perpendicular to the roadway centerline.

B.G.12 – Curved slab bridges are coded "CU – Curved girder(s)".

Culverts are always coded as "N – Not curved".

A straight bridge on a curved road is coded "N – Not curved".

B.F.XX – Features

B.F.01 – Bridge features for a culvert are recorded the same as for a bridge.

Overflow bridges should be coded F##. If this is overwritten to W## by the roadway inventory data, it does not need to be corrected.

Divided highways will have multiple highway features. For example, I-80 with a rail or grass median will have H01 feature for EB I-80 and H02 feature for WB I-80.

B.RT.XX – Routes

B.RT.01 – Where multiple route designations are present including interstates, US highways, state highways, county roads and local streets, only include the interstate, US highway and state highways.

Each highway feature reported for B.F.01 will have at least one route reported for B.RT.01.

B.RT.02 – Do not include route direction.

B.RT.03 – Enter route direction.

B.H.XX – Highways

B.RR.XX – Railroads

B.N.XX – Navigable Waterways

B.0.01 – Only bridges over the Mississippi River or Missouri River should be coded "Y – Navigable waters".

B.LR.XX – Loads and Load Rating

B.LR.07 – Emergency vehicle ratings are included when determining the controlling legal load rating factor. This value should not take postings (such as one lane) into account and should report the rating associated with unrestricted operation.

B.PS.XX – Load Posting Status

B.EP.XX – Load Evaluation and Posting

B.IR.XX – Inspection Requirements

B.IR.02 – The previous determination of Fatigue Vulnerable from the Superstructure tab can be used to help identify bridges as code "Y – E/E' details are present".

B.IE.XX – Inspection Events

B.IE.07 – For B.IE.01 inspection types 2, 3, and 4, record "1 - Method 1". For all other B.IE.01 inspection types, record "N - Not Applicable". Iowa does not utilize "2 – Method 2".

B.C.XX – Component Condition Rating

COMPONENT CONDITION RATING GUIDANCE
Defect Descriptions

Density of Defects
Isolated – occur in one or a few concentrated locations.
Widespread - present in many separate areas of the component.
Some - more than isolated and less than widespread
Severity of Defects
Inherent Defect
Material defects or workmanship/normal construction defects that are not attributed to deterioration.
Minor
One where damage or deterioration has initiated but is not yet considered significant.
Moderate

One where damage or deterioration are significant, but the strength and performance of the component are not affected.

Major

One where damage or deterioration affect the strength and/or performance of the component, as determined by a structural review and/or hydraulic review.

For joints, bearings, railings, and railing transitions, a major defect prevents the component from functioning as intended.

B.C.07 – Code "N – Not applicable" for culverts.

B.C.08 – Code "N – Not applicable" for culverts.

B.C.10 – This section only applies to intentional placed channel protection devices. Natural stream beds should be coded "N – Not applicable". To assist with coding, the following guidance is provided:

- Inherent defects – defects likely from original construction that do not affect performance or service life
- Minor defects – do not affect current performance, may reduce service life, and no repair necessary
- Moderate defects – may affect performance, will reduce service life, and repairs may be warranted
- Major defects – affect performance, repairs are necessary.

B.E.XX – Element Identification

B.CS.XX – Element Conditions

B.AP.XX – Appraisal

B.W.XX – Work Events

B.W.03 – Use code "SP6 – Coating (New or Replaced)" for complete superstructure repainting. Use code "SP7 – Coating (Preserved)" for superstructure zone painting.