

ERRATA SHEET  
RECORDING AND CODING GUIDE FOR THE STRUCTURE  
INVENTORY AND APPRAISAL OF THE NATION'S BRIDGES  
REPORT NO. FHWA-PD-96-001, DECEMBER 1995

**For Future Updates see: [www.fhwa.dot.gov/bridge/nbi.cfm](http://www.fhwa.dot.gov/bridge/nbi.cfm)**

Page vi,

INTRODUCTION

Add the following paragraph at the end of the page:

"Some bridge owners are collecting bridge condition ratings for items included in this Guide (Items 58-Deck, 59-Superstructure, 60-Substructure, and 62-Culvert) using the American Association of Highway and Transportation Officials' (AASHTO) Guide for Commonly Recognized (CoRe) Structural Elements. CoRe element inspection ratings provide detailed condition assessments that can serve as input into a comprehensive bridge management system (BMS). The FHWA has provided bridge owners with a computer program for translating bridge condition data in the CoRe element format to National Bridge Inventory (NBI) condition ratings for the purpose of NBI data submittal to FHWA. The purpose of the program is to permit bridge inspectors to record condition information in a format that satisfies both BMS and NBI data collection requirements."

Page x,

DEFINITION OF TERMS

Add the following definition at the end of the page:

"(s) Commonly recognized (CoRe) Structural Elements. A group of structural elements endorsed by AASHTO as a means of providing a uniform basis for data collection for any bridge management system, to enable the sharing of data between States, and to allow for a uniform translation of data to NBI Items 58, 59, 60, and 62."

Page 5

Item 6B, Critical Facility Indicator, will no longer be coded. Blank space will be inserted in its place.

Page 12

Item 21 and Item 22 - The following additional codes will be added to the list of maintenance responsibility and owner codes:

57 – GSA

58 – Zoo / Smithsonian

59 - NSA

61 - Indian Tribal Government

72 - Air Force

73 - Navy/Marines

74 - Army

75 - NASA

76 - Metropolitan Washington Airports Authority

77 – Pentagon

78- USDA/ARS

79 - DOE

- Page 16: Item 31 – Code 9 has been modified to read MS 22.5 or greater; HS 25 or greater. New codes are added as follows: 0 – Unknown; A – HL93; B – Greater than HL93; and C Other. For more info see <https://www.fhwa.dot.gov/bridge/nbi.cfm>.
- Page 16: Item 32 - Approach Roadway Width, the example on the title line should be (XXX.X meters). On the first line of text it should read “Code a 4-digit number . . .”.
- Page 17 Item 32 - Approach Roadway Width, in the examples the column showing the coding should read from top to bottom 0078, 0162, 0450, and 0288.
- Page 22 Item 39 - Navigation Vertical Clearance, the example on the title line should be (XXX.X meters). On the 4th line of text it should read “. . . as a 4-digit number . . .”. In the examples the column showing the coding should read from top to bottom: 0500, 0206, and 0242.
- Page 22 Item 40 - Navigation Horizontal Clearance, the example on the title line should be (XXXX.X meters). On the 6th line of text it should read “. . . as a 5-digit number . . .”. In the Examples the column showing the coding should read from top to bottom: 00535, 00950, and 02020.
- Page 37 Items 58 through 62 - Add the following sentence to the first paragraph: "The use of the AASHTO Guide for Commonly Recognized (CoRe) Structural Elements is an acceptable alternative to using these rating guidelines for Items 58, 59, 60 and 62, provided the FHWA translator computer program is used to Convert the inspection data to NBI condition ratings for NBI data submittal.
- Page 39 ITEM 60 - Substructure, The 2<sup>nd</sup> paragraph is changed to the following: "All substructure elements should be inspected for visible signs of distress including evidence of cracking, section loss, settlement, misalignment, scour, collision damage, and corrosion. The rating factor given to Item 60 should be consistent with the one given to Item 113 whenever a rating factor of 2 or below is determined for Item 113 - Scour Critical Bridges
- Page 42&44 Item 63 and 65 – Method Used to Determine Operating and Inventory Rating: The following codes are added: 6 – Load Factor (LF) rating reported by rating factor (RF) method using MS18 loading; 7 – Allowable Stress (AS) rating reported by rating factor (RF) method using MS18 loading; 8 - Load and Resistance Factor Rating (LRFR) rating reported by rating factor (RF) method using HL-93 loadings; A – Assigned rating based on Load Factor Design (LFD) reported in metric tons; B - Assigned ratings based on Allowable Stress Design (ASD) reported in metric tons; C - Assigned ratings based on Load and Resistance Factor Design (LRFD) reported in metric tons; D - Assigned rating based on Load Factor Design (LFD) reported by rating factor (RF) using MS18 loading; E - Assigned ratings based on Allowable Stress Design (ASD) reported by rating factor (RF) using MS18 loadings; and F - Assigned ratings based on Load and Resistance Factor Design (LRFD) reported by rating factor (RF) using HL93 loadings. For further information see <http://www.fhwa.dot.gov/bridge/nbi.htm>. ." Further, Code 0 has been

changed to Field evaluation and documented engineering judgment. Code 5 has been changed to no rating analysis or evaluation performed.

Page 63 Item 92C - Other Special Inspection, Guideline for maximum allowable interval between inspections will be changed to 60 months.

Page 67 Item 100 - STRAHNET Highway Designation, The coding for this item is changed to the following:

Code	Description
0	The inventory route is not a STRAHNET route.
1	The inventory route is on a Interstate STRAHNET route.
2	The inventory route is on a Non-Interstate STRAHNET route.
3	The inventory route is on STRAHNET connector route.

Item 113 - Scour Critical Bridges, the item has been changed to the following:

Item 113 - Scour Critical Bridges

1 digit

Use a single-digit code as indicated below to identify the current status of the bridge regarding its vulnerability to scour. Evaluations shall be made by hydraulic/geotechnical/structural engineers. Guidance on conducting a scour evaluation is included in the FHWA Technical Advisory T 5140.23 titled, "Evaluating Scour at Bridges."<sup>1</sup> Detailed engineering guidance is provided in the Hydraulic Engineering Circular 18 titled "Evaluating Scour at Bridges."<sup>2</sup> Whenever a rating factor of 2 or below is determined for this item, the rating factor for Item 60 -- Substructure and other affected items (i.e., load ratings, superstructure rating) should be revised to be consistent with the severity of observed scour and resultant damage to the bridge. A plan of action should be developed for each scour critical bridge (see FHWA Technical Advisory T 5140.23, HEC 18 and HEC 23<sup>3</sup>). A scour critical bridge is one with abutment or pier foundation rated as unstable due to (1) observed scour at the bridge site (rating factor of 2, 1, or 0) or (2) a scour potential as determined from a scour evaluation study (rating factor of 3). It is assumed that the coding of this item has been based on an engineering evaluation, which includes consultation of the NBIS field inspection findings.

<u>Code</u>	<u>Description</u>
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- |   |   |
|---|---|
| N | Bridge not over waterway.   |
| U | Bridge with "unknown" foundation that has not been evaluated for scour. Until risk can be determined, a plan of action should be developed and implemented to reduce the risk to users from a bridge failure during and immediately after a flood event (see HEC 23).   |
| T | Bridge over "tidal" waters that has not been evaluated for scour, but considered low risk. Bridge will be monitored with regular inspection cycle and with appropriate underwater inspections until an evaluation is performed ("Unknown" foundations in "tidal" waters should be coded U.)   |
| 9 | Bridge foundations (including piles) on dry land well above flood water elevations.   |
| 8 | Bridge foundations determined to be stable for the assessed or calculated scour condition. Scour is determined to be above top of footing (Example A) by assessment (i.e., bridge foundations are on rock formations that have been determined to resist scour within the service life of the bridge <sup>4</sup> ), by calculation or by installation of properly designed countermeasures (see HEC 23). |

- 7 Countermeasures have been installed to mitigate an existing problem with scour and to reduce the risk of bridge failure during a flood event. Instructions contained in a plan of action have been implemented to reduce the risk to users from a bridge failure during or immediately after a flood event.
- 6 Scour calculation/evaluation has not been made. (Use only to describe case where bridge has not yet been evaluated for scour potential.)
- 5 Bridge foundations determined to be stable for assessed or calculated scour condition. Scour is determined to be within the limits of footing or piles (Example B) by assessment (i.e., bridge foundations are on rock formations that have been determined to resist scour within the service life of the bridge), by calculations or by installation of properly designed countermeasures (see HEC 23).
- 4 Bridge foundations determined to be stable for assessed or calculated scour conditions; field review indicates action is required to protect exposed foundations (see HEC 23).
- 3 Bridge is scour critical; bridge foundations determined to be unstable for assessed or calculated scour conditions:
  - Scour within limits of footing or piles. (Example B)
  - Scour below spread-footing base or pile tips. (Example C)
- 2 Bridge is scour critical; field review indicates that extensive scour has occurred at bridge foundations, which are determined to be unstable by:
  - a comparison of calculated scour and observed scour during the bridge inspection, or
  - an engineering evaluation of the observed scour condition reported by the bridge inspector in Item 60.
- 1 Bridge is scour critical; field review indicates that failure of piers/abutments is imminent. Bridge is closed to traffic. Failure is imminent based on:
  - a comparison of calculated and observed scour during the bridge inspection, or
  - an engineering evaluation of the observed scour condition reported by the bridge inspector in Item 60.
- 0 Bridge is scour critical. Bridge has failed and is closed to traffic.

<sup>1</sup> FHWA Technical Advisory T 5140.23, Evaluating Scour at Bridges, dated October 28, 1991.

<sup>2</sup> HEC 18, Evaluating Scour at Bridges, Fourth Edition.

<sup>3</sup> HEC 23, Bridge Scour and Stream Instability Countermeasures, Second Edition.

<sup>4</sup> FHWA Memorandum "Scourability of Rock Formations," dated July 19, 1991.

- Page 77 Item 116 - Minimum Navigation Vertical Clearance, Vertical Lift Bridge, the example on the title line should be (XXX.X meters). On the 1st line of text it should read “. . . code a 4-digit number . . .”. In the examples the column showing the coding should read from top to bottom: 0106, and 0242.
- Page B-5 For the computation of "Y" (Width / Lane) the following will be added:
- $$Y \text{ (Width / Lane)} = \frac{\text{Item 51 (Bridge Rdwy. Width)} *}{\text{First 2 digits of \#28 (Lanes)}}$$
- \*A value of 10.9 meters will be substituted when item 51 is coded "0000" or not numeric
- Page B-8 For the computation of “H” the following correction is for the electronic copy
- $$\text{If } X > 1350 \text{ and } Y \geq 4.6 < 4.9 \text{ Then } H = 15((4.9 - Y) / 0.3) \%$$
- Page D-1 Definition of Items should read Definition of Terms@.
- Page D-1 Under Definition of Terms item (b) should read “Culvert. ”
- Page D-1 Under Definition of Terms item (i) should read “Strategic Highway Corridor Network (STRAHNET). Replaces Defense Items, which were dropped. ”
- Page E-1 For Item No. 2 the Item Name should read “Highway Agency District”.
- Page E-1 For Item No. 11 the Item Name should read “Kilometer Point”.
- Page E-4 For Item No. 116 the Item Position should read “386 - 389” and the Item Length/Type should read “4/N”.
- Page E-4 ---Washington Headquarters Use Item Position should read “390 - 427”.

Updated 6/28/12