RC05: Bridge Inspection

ITEMS INCLUDED IN BRIDGE INSPECTION (RC05)

Inspection Date
General Recommendation
Flags
Scour Critical Code
BA Joint Rating
EA Joint Rating
BA Bearing Rating
EA Bearing Rating
BA Seats/Pedestals Rating
EA Seats/Pedestals Rating
BA Backwall Rating
EA Backwall Rating
BA Stem Rating
EA Stem Rating
BA Erosion Rating
EA Erosion Rating
BA Footing Rating
EA Footing Rating
BA Piles Rating
EA Piles Rating
BA Recommendation
EA Recommendation
BWW Wall Rating
EWW Wall Rating
BWW Footing Rating
EWW Footing Rating
BWW Erosion Rating
EWW Erosion Rating
BWW Piles Rating
EWW Piles Rating
Stream Alignment Rating
Channel Erosion Rating
Waterway Opening Rating
Bank Protection Rating
Appr Drainage Rating
Appr Embankment Rating
Appr Settlement Rating
Appr Erosion Rating
Appr Pavement Rating
Appr Guiderail Rating
Agency
Inspection Type
Condition Rating
Sufficiency Rating Prefix
Sufficiency Rating
The Bridge Data Management System (BDMS) stores inventory information regarding the various bridge components. It also stores information regarding the condition of those components. The current NYS Bridge Inspection Manual describes how each component is to be rated. The rated items are presented solely for the purpose of identifying what inspection data is stored in BDMS and what values may be recorded.

**Bridge Inspection Ratings**  
NYSDoT

**PROCEDURE:**  
Most of the items in this table record the inspection ratings assigned to individual bridge elements by the inspector. Ratings are recorded for the following bridge elements:

<table>
<thead>
<tr>
<th>General Recommendations</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BA Joint</td>
<td>BWW Wall Rating</td>
</tr>
<tr>
<td>EA Joint Rating</td>
<td>EWW Wall Rating</td>
</tr>
<tr>
<td>BA Bearing Rating</td>
<td>BWW Footing Rating</td>
</tr>
<tr>
<td>EA Bearing Rating</td>
<td>EWW Footing Rating</td>
</tr>
<tr>
<td>BA Seats/Pedestals Rating</td>
<td>BWW Erosion Rating</td>
</tr>
<tr>
<td>EA Seats/Pedestals Rating</td>
<td>EWW Erosion Rating</td>
</tr>
<tr>
<td>BA Backwall Rating</td>
<td>BWW Piles Rating</td>
</tr>
<tr>
<td>EA Backwall Rating</td>
<td>EWW Piles Rating</td>
</tr>
<tr>
<td>BA Stem Rating</td>
<td>Stream Alignment Rating</td>
</tr>
<tr>
<td>EA Stem Rating</td>
<td>Channel Erosion Rating</td>
</tr>
<tr>
<td>BA Erosion Rating</td>
<td>Waterway Opening Rating</td>
</tr>
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<td>EA Erosion Rating</td>
<td>Bank Protection Rating</td>
</tr>
<tr>
<td>BA Footing Rating</td>
<td>Appr Drainage Rating</td>
</tr>
<tr>
<td>EA Footing Rating</td>
<td>Appr Embankment Rating</td>
</tr>
<tr>
<td>BA Piles Rating</td>
<td>Appr Settlement Rating</td>
</tr>
<tr>
<td>EA Piles Rating</td>
<td>Appr Erosion Rating</td>
</tr>
<tr>
<td>BA Recommendation</td>
<td>Appr Pavement Rating</td>
</tr>
<tr>
<td>EA Recommendation</td>
<td>Appr Guiderail Rating</td>
</tr>
</tbody>
</table>

**CODING:**  
Each bridge component is given a numeric rating using the following codes:  
1 - Totally deteriorated, or in failed condition.  
2 - Used to shade between ratings of 1 and 3.  
3 - Serious deterioration, or not functioning as originally designed.  
4 - Used to shade between ratings of 3 and 5.  
5 - Minor deterioration, but functioning as originally designed.  
6 - Used to shade between ratings of 5 and 7.  
7 - New condition. No deterioration.  
8 - Not applicable.  
9 - Condition and/or existence unknown.
**RC05: Bridge Inspection**

**Inspection Date**  
NYSDoT

**PROCEDURE:**  
Record the Month, Day and Year of the most recent inspection. Record the month and day using two digits with "zero fill" as required. Record the last two digits of the year.

**CODING:**  
Accepts any date in MM/DD/YY format.

**Flags**  
NYSDoT

**PROCEDURE:**  
This field provides a three digit code. The first digit indicates if a Red Flag was identified anywhere on the bridge during the inspection. A "0" indicates No flag identified and a "1" indicates a Flag was identified. The second digit similarly indicates if a Yellow Flag was identified and the third digit indicates if a Safety Flag was identified.

**CODING:**  
000 - No Flags identified  
100 - Only Red Flag identified  
010 - Only Yellow Flag identified  
001 - Only Safety Flag identified  
111 - One of each Flag identified  
All other combinations respectively.

**Agency**  
NYSDoT

**PROCEDURE:**  
Record the code for the Agency performing the inspection.

**CODING:**  
10 - State employees  
13 - Consultant  
21 - Authority

**Inspection Type**  
NYSDoT

**PROCEDURE:**  
Record the code for Type of Inspection performed.

**CODING:**  
1 - Biennial  
2 - Interim  
3 - Not used  
4 - None (under construction)  
5 - Special or Other
ITEM: **Condition Rating**  
NYSDoT

**PROCEDURE:**
Condition Rating is a value which NYSDoT calculates to represent an overall assessment of the condition of a bridge. It is a numerical value from 1.000 (poor) - 7.000 (excellent.)

The computation uses 13 bridge elements considered most important for an overall condition appraisal. Each element is weighted in proportion to its relative importance. The condition of each element is multiplied by the assigned weight for that element, with the result divided by the sum of the weighted values, resulting in the Condition Rating for the bridge.

The 13 bridge elements and their respective weights, are as follows:

<table>
<thead>
<tr>
<th>Element</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Members</td>
<td>10</td>
</tr>
<tr>
<td>Abutments(Stem/Breastwall)</td>
<td>8</td>
</tr>
<tr>
<td>Piers</td>
<td>8</td>
</tr>
<tr>
<td>Structural Deck</td>
<td>8</td>
</tr>
<tr>
<td>Bridge Seats</td>
<td>6</td>
</tr>
<tr>
<td>Bearings</td>
<td>6</td>
</tr>
<tr>
<td>Wingwalls</td>
<td>5</td>
</tr>
<tr>
<td>Backwalls</td>
<td>5</td>
</tr>
<tr>
<td>Secondary Members</td>
<td>5</td>
</tr>
<tr>
<td>Joints</td>
<td>4</td>
</tr>
<tr>
<td>Wearing Surface</td>
<td>4</td>
</tr>
<tr>
<td>Sidewalks</td>
<td>2</td>
</tr>
<tr>
<td>Curbs</td>
<td>1</td>
</tr>
</tbody>
</table>

When a bridge has several elements of one kind, such as multiple piers, the lowest rating of all elements is used. Details of the relationship of condition values to the various elements used in the Structural Condition Formula may be found in the Department's Bridge Inspection Manual.

Condition Rating is computed to three decimal places using the ratings of the thirteen elements with whole number values assigned. The three decimal point accuracy is significant only for the purpose of "breaking ties" when listing bridges by rank order of Condition Rating.

**CODING:**
Accepts numeric values 0.000 - 7.000

ITEM: **Sufficiency Rating**  
FHWA

**PROCEDURE:**
FHWA uses a Sufficiency Rating to provide an overall assessment of a bridge's condition. A number is assigned from 0.0 (poor) to 100.0 (excellent) to represent both structural and functional adequacies. A fairly complex formula is used and is described in FHWA's *Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges*, December 1995.

**CODING:**
A numeric value from 0.0 to 100.0
ITEM: Sufficiency Rating Prefix

PROCEDURE:
This Item indicates an asterisk (*) if the Sufficiency Rating (the next item described) was calculated even though some essential data was missing or coded incorrectly. The BDMS system will substitute a value for the unusable data (which will not lower the rating) and calculate the sufficiency rating. The asterisk is dropped when the unusable data is corrected.

It is normal that all culverts with Bridge Roadway Width, Curb-to-Curb coded '0000' will have an asterisk prefixed sufficiency.

CODING:
• Essential data was missing, but Sufficiency Rating calculated anyway

Blank - All essential data available for calculating Sufficiency Rating