



BRIDGE LOAD RATING REPORT CHECKLIST

MassDOT Bridge Manual
Hundredth Anniversary Edition

CITY/TOWN:
DISTRICT:
FACILITY CARRIED:
FEATURES INTERSECTED:
BR. DEPT. NO.:
BIN:
STRUCTURE NO.:
MEMORIAL NAME/LOCAL NAME:

SUBMITTED BY:

Rating Engineer: The Rating Engineer shall be a Professional Engineer (PE) registered in the Commonwealth of Massachusetts in Responsible Charge of the work.

The **Rating Engineer** certifies that they have reviewed the Bridge Load Rating Report in accordance with this checklist and that all responses on this checklist are correct and accurately reflect the information presented in the submitted Rating Report.

SIGNATURE OF RATING ENGINEER
FIRM NAME:

DATE

CHECKLIST INSTRUCTIONS:

The purpose of this checklist is to help the Rating Engineer and Independent Reviewer ensure that MassDOT standards for Rating Reports have been followed and that all necessary information has been provided per the Bridge Manual (*Hundredth Anniversary Edition*)

As required by the Bridge Manual, Part I, Chapter 7, Section 7.1, Subsection 7.1.4 and Section 7.4, Subsection 7.4.3, the Rating Engineer and Independent Reviewer shall be Professional Engineers, registered in the Commonwealth of Massachusetts. The Independent Reviewer and the Rating Engineer shall not be the same person.

Where a question requires the Rating Engineer to select NO (N) for a particular check box (i.e. for Truss Bridges where the bridge is not a truss), no explanation is necessary. In all other instances, a NO (N) response requires a written explanation if the space is provided.

A NO (N) response for items so designated, indicates a FATAL OMISSION that will result in automatic rejection of the Rating Report. Please note, that MassDOT reserves the right to reject any Rating Report that does not meet the requirements of the Bridge Manual at our discretion, regardless of whether an item is noted as a FATAL OMISSION or not.

Written explanations that are too long for the space provided shall be noted with a letter or number designation and written on the Additional/Supplemental Information page.

1. REPORT COVER

Y	N	For any submission other than the FINAL rating report, is the front cover unstamped, and unsigned, but the written agreement of the Independent Reviewer (Statement of Concurrence) included, signed, and dated, but not stamped by a Professional Engineer per the Bridge Manual, Part I, Chapter 7, Section 7.4, Subsection 7.4.3? (A NO (N) response indicates a FATAL OMISSION.) For the FINAL rating report select YES (Y).
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	Is the FINAL rating report front cover stamped, signed, and dated by a PE and formatted per the Bridge Manual, Part I, Chapter 7, Figure 7.5.2-1? (A NO (N) response indicates a FATAL OMISSION.)
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	Is the rating report cover the correct color?
<input type="checkbox"/>	<input type="checkbox"/>	

2. INDEX

Y	N	Are the indexes of each section outlined with the page numbers shown correctly in the rating report?
<input type="checkbox"/>	<input type="checkbox"/>	

Y	N	Is the rating report .PDF bookmarked so that the reader can navigate to each individual section without having to scroll through the file? Are the appendices containing calculations, or computer input and output, further bookmarked to match the index, and by each computer output (i.e. Beam #1, Beam #2, etc.) so that the reader can navigate to a particular calculation or output of interest? (A NO (N) response indicates a FATAL OMISSION.)
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

3. SUMMARY OF BRIDGE RATING

Y	N	Are the rating values on the Summary of Bridge Rating correctly tabulated identifying the controlling rating values from the Breakdown of Bridge Rating? (A NO (N) response indicates a FATAL OMISSION.)
<input type="checkbox"/>	<input type="checkbox"/>	

Y	N	Are Items 64 and 66 (FHWA NBIS Factors or Ratings) entered for the controlling roadway beam(s) in accordance with the Bridge Manual, Part I, Chapter 7, Section 7.2, Subsection 7.2.4, Paragraph 7.2.4.2A or 7.2.4.2B?
<input type="checkbox"/>	<input type="checkbox"/>	

Y	N	Is the value provided for Item 64 greater than or equal to the value provided for Item 66 (FHWA NBIS Factors or Ratings)? (A NO (N) response indicates a FATAL OMISSION.)
<input type="checkbox"/>	<input type="checkbox"/>	

Y	N	Is the format of the Summary of Bridge Rating in accordance with the Bridge Manual, Part I, Chapter 7, Figure 7.5.2-2A or 7.5.2-4B? (A NO (N) response indicates a FATAL OMISSION.)
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	Are the specialized hauling vehicles, SU4 through SU7, and the FAST Act emergency vehicles, EV2 and EV3, as shown in Figures 7.5.2-11 and 7.5.2-12 included in the Summary in accordance with the Bridge Manual, Part I, Chapter 7, Figure 7.5.2-2A or 7.5.2-4B?
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

4. BREAKDOWN OF BRIDGE RATING

Y	N	Are only the controlling rating values shaded solid, with rating values below statutory highlighted, with the font in the appropriate colors, formatted per the Bridge Manual, Part I, Chapter 7, Section 7.5, Subsection 7.5.2, Bullet 4.1?
<input type="checkbox"/>	<input type="checkbox"/>	

Y	N	Is the Breakdown of Bridge Rating formatted per the Bridge Manual, Part I, Chapter 7, Figure 7.5.2-3A(1), 7.5.2-3A(2), & 7.5.2-3A(3), or 7.5.2-5B(1), 7.5.2-5B(2) & 7.5.2-5B(3), or 7.5.2-6A, or 7.5.2-6B, or 7.5.2-7?
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	Is HL-93 or MS18 shaded solid only for the controlling roadway beam(s), with rating values below statutory highlighted, with the font in the appropriate colors, formatted per the Bridge Manual, Part I, Chapter 7, Figure 7.5.2-3A(3) or 7.5.2-5B(3)? (A NO (N) response indicates a FATAL OMISSION.)
<input type="checkbox"/>	<input type="checkbox"/>	

Stringer/Girder and Girder/Floorbeam/Stringer Bridges, including Precast Concrete Bridges

Y	N	Is the bridge a Stringer/Girder or Girder/Floorbeam/Stringer Bridge?
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	Are the rating values in the Breakdown of Bridge Rating tabulated at the critical locations per the Bridge Manual, Part I, Chapter 7, Section 7.2, Subsection 7.2.2, Paragraph 7.2.2.1? For non-Stringer/Girder and non-Girder/Floorbeam/Stringer bridges select NO (N).
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Truss Bridges

Y	N	Are the rating values in the Breakdown of Bridge Rating tabulated at all chords, diagonals, floorbeams, stringers, bracing, and gusset plates per the Bridge Manual, Part I, Chapter 7, Section 7.2, Subsection 7.2.2, Paragraph 7.2.2.3A or 7.2.2.3B? For non-truss bridges select NO (N)
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Concrete and Masonry Arches

Y	N	Are the rating values in the Breakdown of Bridge Rating tabulated at the crown, springlines, and quarter points per the Bridge Manual, Part I, Chapter 7, Section 7.2, Subsection 7.2.2, Paragraph 7.2.2.6? For non-arch bridges select NO (N).
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Other Bridge Types

Y	N	Are the rating values in the Breakdown of Bridge Rating calculated for all primary elements and at all critical locations? For non-Other Bridge Types select NO (N).
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

5. LOCATION MAP

Y	N	Does the location map provide sufficient landmarks and adjacent highway information to allow the user to find the bridge in the field without additional information?
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	Is the location map a street map in color? (no satellite imagery or topographic maps)
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

6. DESCRIPTION OF BRIDGE

Y	N	Is the Description of Bridge formatted per the Bridge Manual, Part I, Chapter 7, Figure 7.5.2-8?
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

7. RATING ANALYSIS ASSUMPTIONS AND CRITERIA

Y	N	Are all methods, assumptions, allowable stresses, strengths, and computer programs, including version, used to determine the rating clearly stated?
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	Have the condition of the bridge substructure and superstructure been reviewed and evaluated? Has a statement regarding the review of each been included? (A NO (N) response indicates a FATAL OMISSION.)
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	Is any additional discussion included for any condition or situation that is extraordinary for this structure?
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Decks

Y	N	Has the condition of the concrete deck been reviewed and evaluated per the Bridge Manual, Part I, Chapter 7, Section 7.2, Subsection 7.2.2, Paragraph 7.2.2.7? Has a statement regarding the review, and rating, or not rating, of the deck been included? For timber, metal grid, or alternative decks select NO (N).
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	Has the timber deck been rated per the Bridge Manual, Part I, Chapter 7, Section 7.2, Subsection 7.2.2, Paragraph 7.2.2.7? For concrete, metal grid, or alternative decks select NO (N).
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	Have the purlins of the metal grid deck been rated per the Bridge Manual, Part I, Chapter 7, Section 7.2, Subsection 7.2.2, Paragraph 7.2.2.7? For concrete, timber, or alternative decks select NO (N).
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	Has the alternative deck been discussed, reviewed, and evaluated per the Bridge Manual, Part I, Chapter 7, Section 7.2, Subsection 7.2.2, Paragraph 7.2.2.7? Has a statement regarding the review, and rating, or not rating, of the deck been included? For concrete, timber, or metal grid decks select NO (N).
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

7. RATING ANALYSIS ASSUMPTIONS AND CRITERIA (continued)

Alternate Load Rating Using Actual Lane Location

Y	N	Are the live load distribution factors, if required, using the actual travel lanes calculated per the Bridge Manual, Part I, Chapter 7, Section 7.2, Subsection 7.2.4, Paragraph 7.2.4.5? If the alternate load rating is not required select NO (N).
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Special Instructions for Load Ratings

Y	N	Have clarifications or deviations from the Chapter 7 guidelines been submitted to the State Bridge Engineer, and all correspondence including responses been included? If no clarifications or deviations, select NO (N).
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	For pile bents or non-reinforced concrete substructures, have the pile bent piles and the pile cap, or other non-reinforced concrete substructure, been rated in accordance with the Bridge Manual, Part I, Chapter 7, Section 7.2, Subsection 7.2.5, Paragraph 7.2.5.4? If no pile bent or non-reinforced concrete substructure, select NO (N).
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	Have bearing pedestals and/or beam seats that are cracked, spalled, and undermined been reviewed, evaluated, and their bearing strength confirmed?
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	For structures with unknown structural details and no Construction Drawings, have detailed field measurements, non-destructive testing, and/or a material testing program been performed per the Bridge Manual, Part I, Chapter 7, Section 7.2, Subsection 7.2.5, Paragraph 7.2.5.5?
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Prestressed Members including Adjacent Prestressed Beams

Y	N	Have the special instructions for Prestressed Members been followed per the Bridge Manual, Part I, Chapter 7, Section 7.2, Subsection 7.2.6? For non-precast member structures select NO (N).
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Concrete and Masonry Arches

Y	N	Have the special instructions for Concrete and Masonry Arches been followed per the Bridge Manual, Part I, Chapter 7, Section 7.2, Subsection 7.2.7 and Subsection 7.2.8? For non-arch structures select NO (N).
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Corroded Steel Beam Webs

Y	N	Have the special instructions for Corroded Steel Beam Webs been followed per the Bridge Manual, Part I, Chapter 7, Section 7.2, Subsection 7.2.9? For non-steel structures and structures without web losses select NO (N).
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Deteriorated Prestressed Beams

Y	N	Have the special instructions for Deteriorated Prestressed Beams been followed per the Bridge Manual, Part I, Chapter 7, Section 7.2, Subsection 7.2.10? For non-prestress and those without deterioration select NO (N).
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

8. EVALUATION OF RATING AND RECOMMENDATIONS

Y	N	Is the Evaluation of Rating provided per the Bridge Manual, Part I, Chapter 7, Section 7.2, Subsection 7.2.11, Paragraph 7.2.11.1? Are any significant differences between the current and prior rating identified and formatted per the Bridge Manual, Part I, Chapter 7, Figure 7.5.2-9?
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	Are the Recommendations developed per the Bridge Manual, Part I, Chapter 7, Section 7.2, Subsection 7.2.11, Paragraph 7.2.11.2?
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	Are the Recommendations for Immediate Action developed per the Bridge Manual, Part I, Chapter 7, Section 7.2, Subsection 7.2.11, Paragraph 7.2.11.3? If immediate action is not required, select NO (N).
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

9. AVAILABLE PLANS AND INSPECTION REPORTS

Y	N	Are all plans, latest inspection reports, and their respective sources that were available for the rating stated and included with the report? If a more recent inspection has been performed, but it is not available, has it been noted?
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	Are copies of all plans, converted to PDF, combined into a single file per Construction Contract, provided in folders by date, per the Bridge Manual, Part I, Chapter 7, Section 7.5, Paragraphs 7.5.3.1 and 7.5.3.2?
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

10. LOADINGS USED FOR BRIDGE RATING

Y	N	For a Load Factor or Allowable Stress rating, are the standard diagrams of the H20, Type 3, Type 3S2, HS20, SU4, SU5, SU6, SU7, EV2, and EV3 vehicles showing axle weights and spacing included per the Bridge Manual, Part I, Chapter 7, Figures 7.5.2-10B, 7.5.2-11, and 7.5.2-12? For a Load and Resistance Factor rating select NO (N).
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	For a Load and Resistance Factor rating, are the standard diagrams of the H20, Type 3, Type 3S2, SU4, SU5, SU6, SU7, EV2, and EV3 vehicles, and HL-93 loading showing axle weights and spacing included per the Bridge Manual, Part I, Chapter 7, Figures 7.5.2-10A, 7.5.2-11, 7.5.2-12, and 7.5.2-13A? For a Load Factor or Allowable Stress rating select NO (N).
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

11. APPENDIX A: INSPECTION REPORTS

Y	N	Does the SI&A sheet appear first?
<input type="checkbox"/>	<input type="checkbox"/>	(A NO (N) response indicates a FATAL OMISSION.)

Y	N	Is the latest available Routine or Routine & Special Member Inspection Report included? (A NO (N) response indicates a FATAL OMISSION.)
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	Are all the photos in the inspection report in color?
<input type="checkbox"/>	<input type="checkbox"/>	(A NO (N) response indicates a FATAL OMISSION.)

Explanation:

Y	N	Are Special Member, Fracture Critical, and/or Underwater Inspection Reports included if available?
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

12. APPENDIX B: PHOTOS

Y	N	Is an index of the photographs included?
<input type="checkbox"/>	<input type="checkbox"/>	

Y	N	Do the photographs contain both elevation views, views of both approaches, top of deck, views from both sides of the feature crossed, views of each substructure, and framing views (if various, one of each type), including sufficient critical members and deficiencies?
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	Have photographs been included depicting deficiencies, or areas of deficiency, that are considered in the Computations?
<input type="checkbox"/>	<input type="checkbox"/>	(A NO (N) response indicates a FATAL OMISSION.)

Explanation:

Y	N	Are all of the photos in color and no smaller than 3" x 5"?
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

13. APPENDIX C: COMPUTATIONS

Y	N	Is an Index of the calculations included?
<input type="checkbox"/>	<input type="checkbox"/>	

Y	N	Is the written agreement of the Independent Reviewer (Statement of Concurrence) included, signed, dated, and stamped by a Professional Engineer per the Bridge Manual, Part I, Chapter 7, Section 7.4, Subsection 7.4.3? (A NO (N) response indicates a FATAL OMISSION.)
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

13. APPENDIX C: COMPUTATIONS (continued)

Y	N	Do all calculation headers include a company logo, note who calculated by, who checked by, and date?
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	Is a summary table of all the dead loads and live load distribution factors, including a breakdown of the dead loads (self, non-composite, composite, wearing surface, etc.) with sketches and references included?
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	Are dead loads distributed per the Bridge Manual, Part I, Chapter 7, Section 7.2, Subsection 7.2.3?
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	For a Load and Resistance Factor rating is a summary of the live load factors used for the vehicles included? For a Load Factor or Allowable Stress rating select NO (N).
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	Are the live load distribution factors calculated per the Bridge Manual, Part I, Chapter 7, Section 7.2, Subsection 7.2.4 and AASHTO?
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	Does the electronic submission contain an Adobe Acrobat (.PDF) file of the entire report and all analysis software input and output files (AASHTOWare, MIDAS, CSIBridge, etc.), the calculation files, and the plans per the Bridge Manual, Part I, Chapter 7, Section 7.3, Subsection 7.3.1? (A NO (N) response indicates a FATAL OMISSION.)
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	Are all electronic files used for the development of the rating (i.e. Excel, MathCAD, AutoCAD, etc.) included in the electronic submission? (A NO (N) response indicates a FATAL OMISSION.)
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

Y	N	Are the calculations/steps easy to follow and do they include code section references, define variables, and clearly depict original equations noting the equation number, if applicable? (A NO (N) response indicates a FATAL OMISSION.)
<input type="checkbox"/>	<input type="checkbox"/>	

Explanation:

14. APPENDIX D: COMPUTER INPUT AND OUTPUT

Y
☐

N
☐

Is the analysis software file named per the Bridge Manual, Part I, Chapter 7, Section 7.4, Subsection 7.4.2, Paragraph 7.4.2.3?
(A NO (N) response indicates a FATAL OMISSION.)

Explanation:

15. DISTRIBUTION

Y
☐

N
☐

Has the electronic submission been distributed per the Bridge Manual, Part I, Chapter 7, Section 7.3, Subsection 7.3.2?

Explanation:

Additional/Supplemental Information