
CONNECTICUT DEPARTMENT OF TRANSPORTATION

BRIDGE LOAD RATING MANUAL

Summary of Changes

Prepared by the Load Rating Section

The purpose of this document is to highlight changes made to the BLRM and not all changes will be documented within this summary.

VERSION 2018.1.0

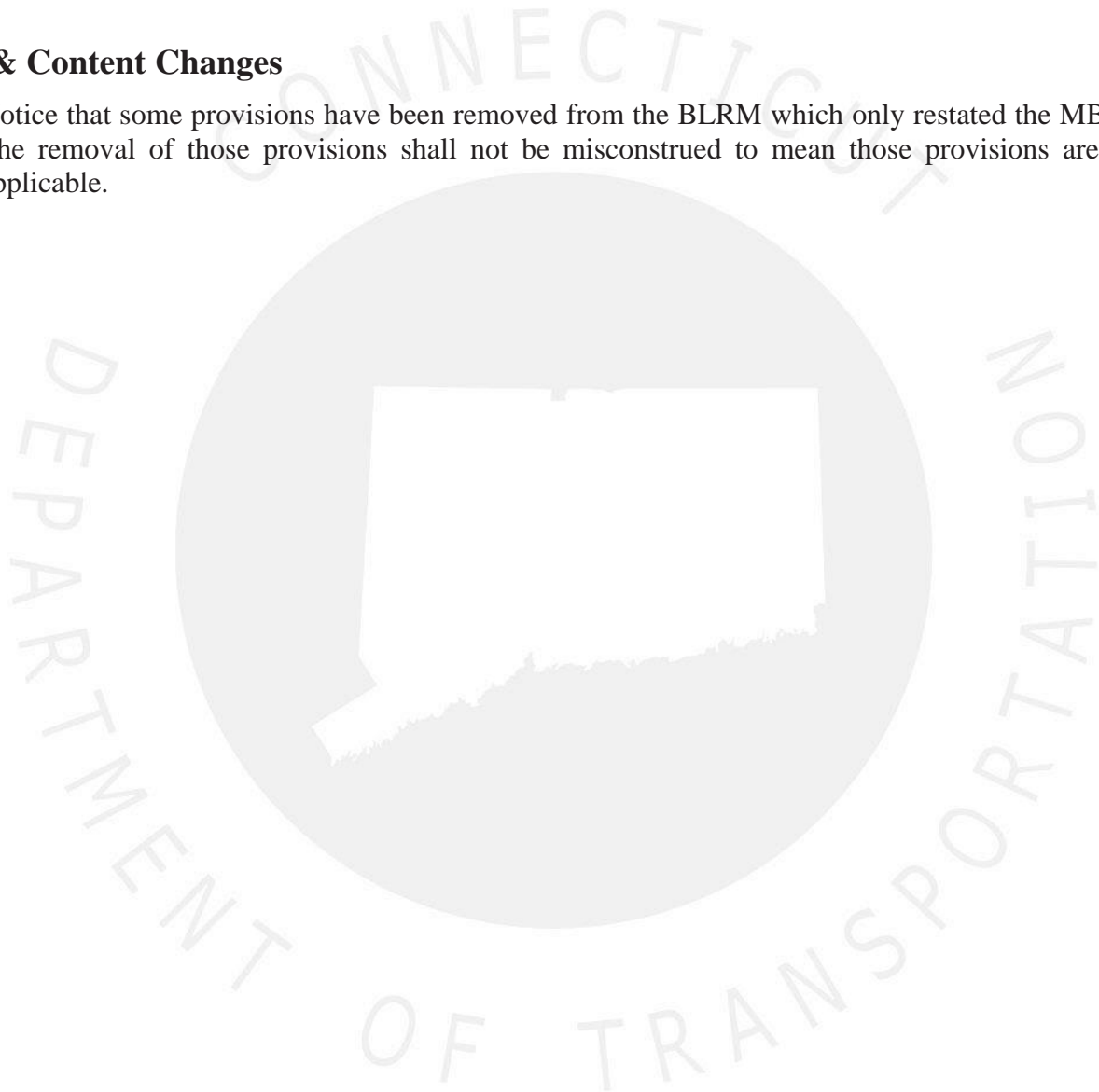
Editorial Changes

This version of the BLRM incorporates extensive editorial changes to the manual.

- Headings
- Readability & Phrasing
- Cross References
- Format

Policy & Content Changes

Notice that some provisions have been removed from the BLRM which only restated the MBE or BDS. The removal of those provisions shall not be misconstrued to mean those provisions are no longer applicable.



Chapter 1 General

Description of Change	Version 2018.1.0 Reference	Version 1.0 Reference
LRE shall notify the LRS prior to performing a concrete deck or concrete substructure evaluation, for LRS to determine if required.	1.5 Components for Evaluation	1.5 Members for Evaluation
System of units provisions were altered to urge the LRE to use the system of units of the design plans in the analysis.	1.6 System of Units	1.7 System of Units
Moved and elaborated on 'Bridge Component Labeling Systems' from Chapter 12 to the end of chapter.	1.7 Bridge Component Labeling	Chapter 12 Introduction



Chapter 2 Loads For Evaluation

Description of Change	Version 2018.1.0 Reference	Version 1.0 Reference
Increase unit weight of bituminous wearing surfaces based on CTDOT Lab data.	2.1.1.1b Unit Weight of Materials	2.1.1.1 DC and DW
Modified assumptions to be made for unknown wearing surface thicknesses.	2.1.1.2b Wearing Surfaces	2.1.1.2.1 DC and DW
Added Stress Reversal provisions. Previous manual was silent on procedures for members which undergo stress reversal.	2.2.2 Stress Reversal	N/A
Changed procedure for when a Pedestrian analysis is required. The new provisions will reduce the number of members required for pedestrian analysis.	2.3.4 Pedestrian Live Loads: PL	2.3.4 Pedestrian Live Loads: PL
Added Centrifugal Forces provisions. Previous manual was silent on the effects of a curved travelway.	2.3.7 Centrifugal Forces: CE	N/A

Chapter 3 **Structural Analysis**

No policy changes noted.



Chapter 4 Load Rating Procedures

Description of Change	Version 2018.1.0 Reference	Version 1.0 Reference
Removed minimum ADTT requirements for new structures. Requirements that address the concept of minimum ADTT for new structures will be handled through design direction.	N/A	4.3.2.1 Live Load Factors 4.4.4 Live Load Factors
Added System Factor provisions for diaphragms and non-redundant steel components. Diaphragm provisions will increase ratings for existing diaphragms of straight girders. The new provisions will decrease ratings for non-redundant steel members not addressed in MBE.	4.1.3 System Factor	4.1.3 System Factor
Added guidance on how to properly determine ADTT.	4.1.4 Average Daily Truck Traffic	N/A
Added parameters for traffic growth rates to use in fatigue remaining life calculations.	4.1.5 Traffic Growth Rate	N/A
Removed requirement to rate the CT-TLC. The requirements to evaluate the CT-TLC for design projects are unaffected by this removal.	N/A	4.4.3 Special Permits
Added FAST ACT Emergency Vehicles to vehicles required for rating.	4.5 Emergency Vehicle Rating	N/A
Established a maximum number of lanes a permit vehicle can occupy. Previous manual was silent.	4.4.3 Multiple Presence	N/A
Moved provisions for spans greater than 200 ft and continuous spans from chapter 6.	4.4.5 Spans Greater than 200 Feet, Continuous Spans and Interior Reactions	6.10 Structures with Spans Greater than 200 Feet or Continuous Spans
Added interior reactions to provisions for spans greater than 200 ft and continuous spans for permit vehicles.	4.4.5 Spans Greater than 200 Feet, Continuous Spans and Interior Reactions	6.10 Structures with Spans Greater than 200 Feet or Continuous Spans
The CT-P180(9) and CT-P200(10) have been redefined as single-trip permits mixed with traffic. Permit vehicles greater than 160,000 pounds are not issued an annual permit.	4.4.2 Permit Types	4.4.2 Permit Types

Chapter 5 Concrete Structures

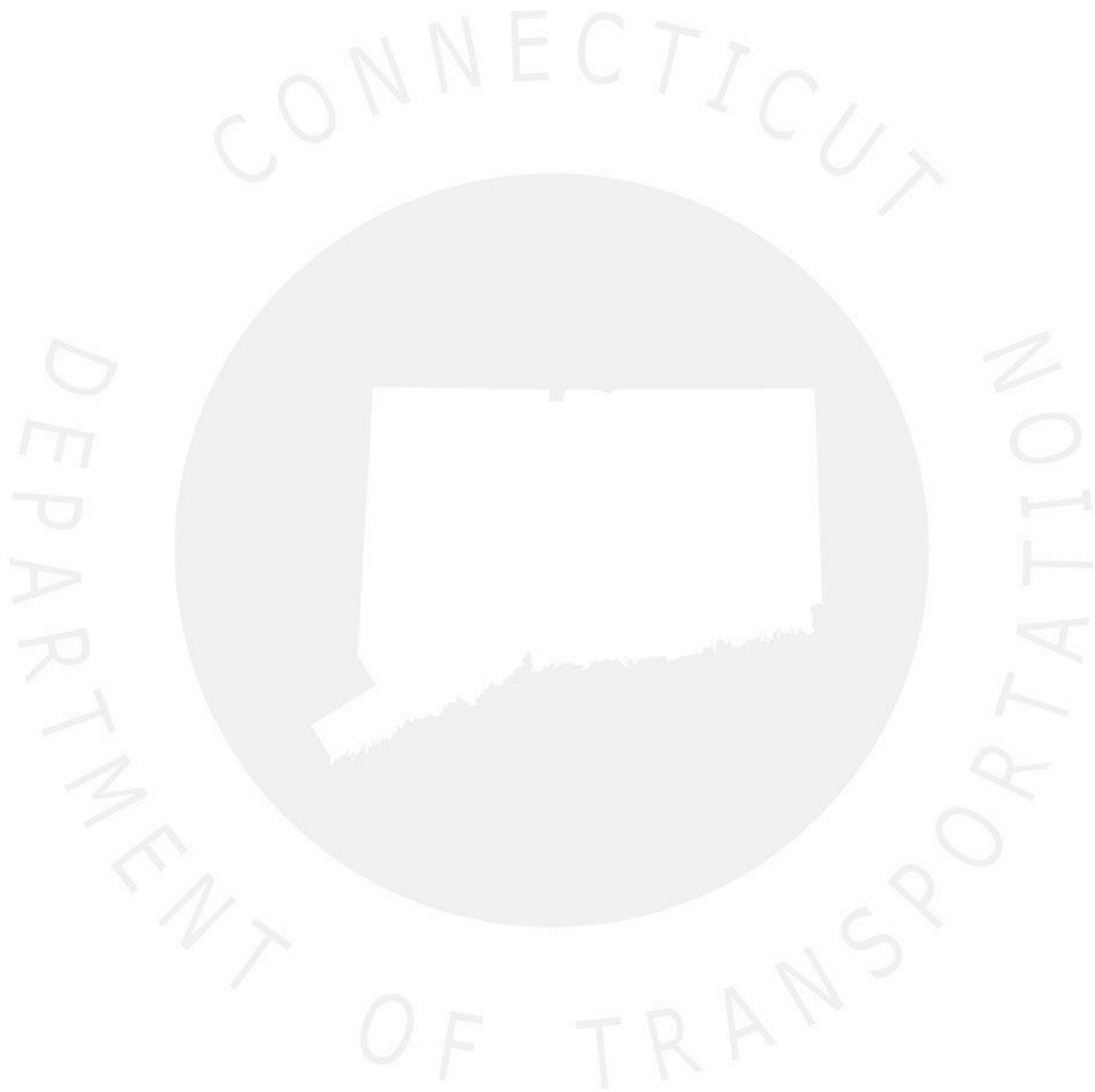
Description of Change	Version 2018.1.0 Reference	Version 1.0 Reference
Changed requirement that longitudinal reinforcement shall be performed when shear is calculated based on the General Shear Procedure regardless of continuity.	5.3.2 Longitudinal Reinforcing	5.4.3 Evaluation for Shear
Added method to assume initial concrete strength.	5.1.1.1d Strength	N/A
Revised material sampling procedures. Previous manual incorrectly referenced steel sampling MBE procedures.	5.1.1.4 Material Sampling	5.1.1.4 Concrete
Added additional guidance for selecting a prestressing strand type and ultimate strength to use for analysis.	5.1.3 Prestressing Steel	5.1.3 Prestressing Steel
Removed provisions for number of lanes loaded for segmental structures. MBE provisions to govern.	N/A	5.6 Rating of Segmental Concrete Bridges

Chapter 6 Steel Structures

Description of Change	Version 2018.1.0 Reference	Version 1.0 Reference
Added table of historic structural steels and rivets from previous <i>Connecticut Standard Specifications for Roads, Bridges and Incidental Construction</i> .	6.1.1b Mechanical Properties	N/A
Added guidance to produce ratings for partial height bearing stiffeners.	6.3.1.2.2 Partial Height Stiffeners and Connection Plates	N/A
Modified failure mechanisms to check for beam ends.	6.3.1 Beam Ends	6.3.2 & 6.3.3 Effects of Deterioration on Load Rating
Extended provisions to allow for partially encased top flanges of non-composite sections to be evaluated as composite at the Service and Fatigue limit states.	6.5.2.2.1 Service & Fatigue Limit States	6.5.3.2
Modified policy that unintended composite action shall not be investigated unless directed by the LRS at the Strength Limit States.	6.5.2.2.2 Strength Limit State	6.5.3.2
Modified equation to calculate the interface shear stress to account for the effects of loads acting on the long-term and short-term composite sections.	6.5.2.2.3 Steel-Concrete Bond Strength	6.5.3.2.2
Generalized the criteria for requirements to evaluate critical connections.	6.8 Evaluation of Critical Connections	6.8 Evaluation of Critical Connections
End Conditions Assumptions provisions, originally mandatory, were made optional.	6.9 End Condition Assumptions	6.9 End Condition Assumptions
Added alternate method to determine floorbeam or stringer span length to use in the analysis.	6.9.1b Floor Systems	6.9.2 End Condition Assumptions
Added additional end condition guidance for truss members.	6.9.2 Truss Members	6.9.3 End Condition Assumptions

Chapter 7 **Timber Structures**

No policy changes noted.



Chapter 8 **Low Ratings, Posting & Restriction**

This chapter of the load rating manual has been changed from Posting to incorporate procedures related to low ratings.

Description of Change	Version 2018.1.0 Reference	Version 1.0 Reference
Added guidance for the LRE when Low Ratings are produced.	8.1 Interpretation of Ratings	N/A



Chapter 9 Special Topics

Description of Change	Version 2018.1.0 Reference	Version 1.0 Reference
Removed all CT specific requirements for evaluating Pedestrian Bridges. AASHTO LRFR Guide Specifications for the Design of Pedestrian Bridges shall govern.	9.2 Evaluation on Pedestrian Bridges	9.2 Evaluation of Pedestrian Bridges



Chapter 10 Rating of Buried Structures

Description of Change	Version 2018.1.0 Reference	Version 1.0 Reference
Provided general rating procedure for buried structure types not covered by the MBE.	10.1 General Buried Structure Rating Procedures	N/A
Added guidance to determine the control depth of fill.	10.2.2 Depth of Fill	N/A
Added equation to break out dead and live load components of BDS thrust equation to compute a rating factor for metal pipe culverts.	10.6.3 Thrust	N/A



Chapter 11 **Reporting LRFR Ratings**

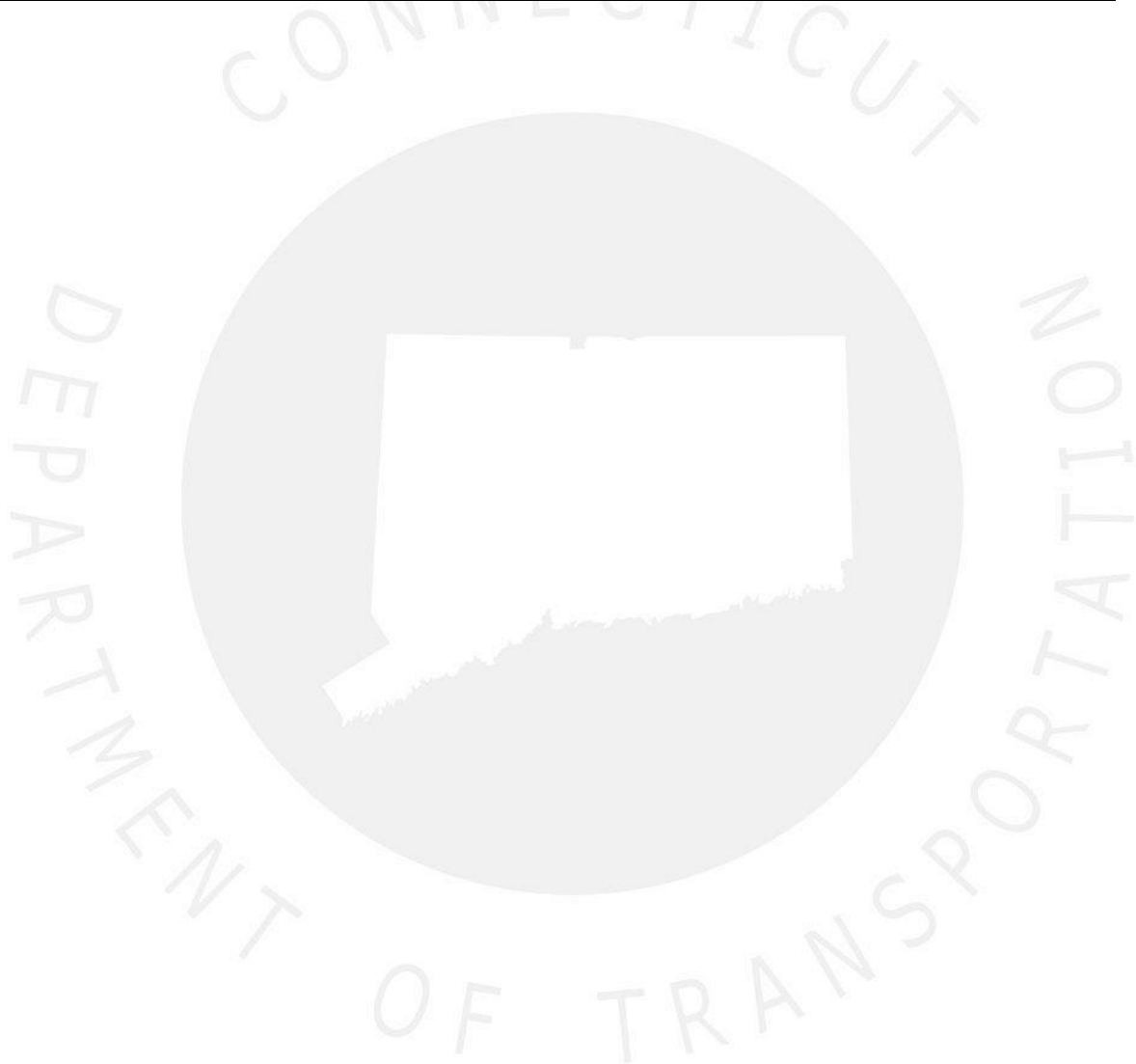
No policy changes noted.



Chapter 12 Load Rating Package

Provided additional guidance for the Load Rating Submission Package.

Description of Change	Version 2018.1.0 Reference	Version 1.0 Reference
Changed column to sort in <i>Rating Less Than 1.0</i> tables.	12.2.4 Rating Factors Less than 1.0	12.1.3 Rating Factors Less than 1.0
Changed identification of <i>Primary Members</i> in methodology section to <i>Rated Members</i> .	12.2.5.4 Rated Members	12.1.4.3 Primary Members



Chapter 13 **Analysis Software**

Description of Change	Version 2018.1.0 Reference	Version 1.0 Reference
Broke out BrR modeling preferences to a separate BrR user guide to remove clutter and to allow for documents to update separately.	13.2.1 Modeling	13.1 AASHTOWare Bridge Rating
Modified provisions for what output files are required from BrR. Updated provisions should reduce Submission Package files sizes.	13.2.3 Program Output	13.1.2 General Requirements
Removed ETCulvert as an approved analysis software for load rating.	N/A	13.4 ETCulvert
Added CTDOT Developed Software.	13.8 CTDOT Developed Software	13.8 CTDOT Developed Software

Chapter 14 **Quality Control/Quality Assurance**

No policy changes noted.



Chapter 15 **References**

No policy changes noted.

