AASHTOWare Bridge Rating/Design Training

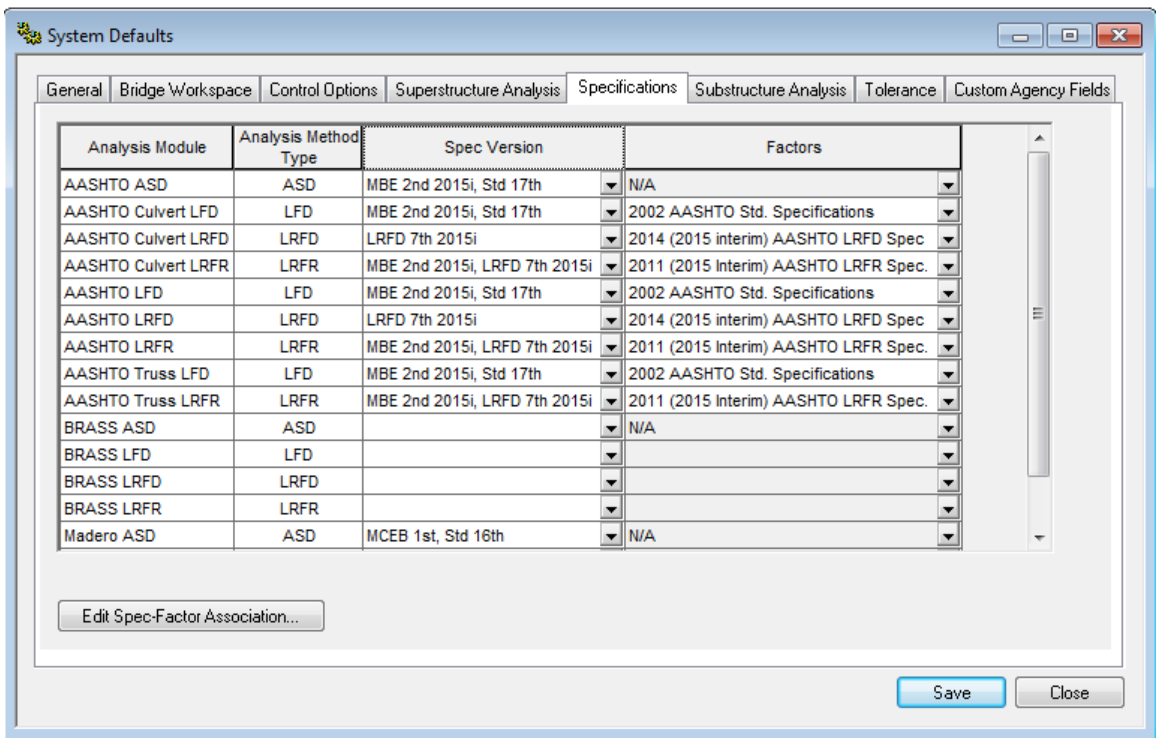
2015 Spec Update Overview (BrDR 6.7)

Topics Covered:

- MBE 6A.2.3.2/6B.6.2.2 Rate based on striped lanes
- LRFD 6.12.2.2.4 (LRFR of truss members)
- LRFD 6.5.4.2 revise text label
- LRFD 6.10.11.1.3 new equations for transverse stiffener MOI

This session covers changes to BrDR 6.7 in accordance with the AASHTO 2015 specification update changes. Specification changes are voted on by AASHTO members at the annual SCOBS meeting held each summer. Approved changes are then incorporated into the next publication of the specification.

For 2015, AASHTO has published the 2015 interims of 7th Edition of the LRFD Specifications and the 2015 interims to the 2nd Edition MBE. These Spec editions are set as the system default specifications in BrDR 6.7.



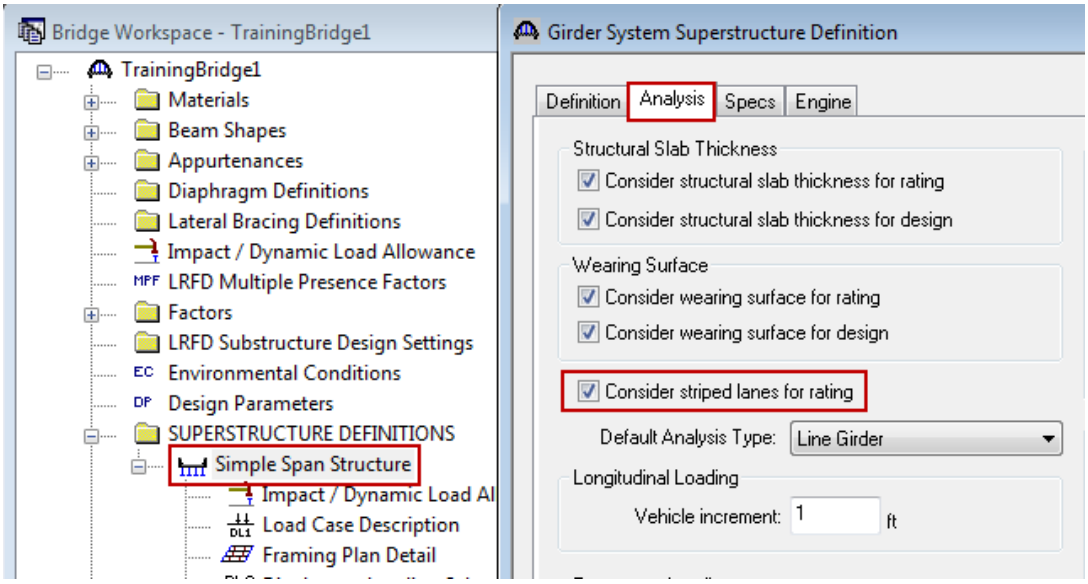
Analysis Module	Analysis Method Type	Spec Version	Factors
AASHTO ASD	ASD	MBE 2nd 2015i, Std 17th	N/A
AASHTO Culvert LFD	LFD	MBE 2nd 2015i, Std 17th	2002 AASHTO Std. Specifications
AASHTO Culvert LRFD	LRFD	LRFD 7th 2015i	2014 (2015 interim) AASHTO LRFD Spec
AASHTO Culvert LRFR	LRFR	MBE 2nd 2015i, LRFD 7th 2015i	2011 (2015 Interim) AASHTO LRFR Spec.
AASHTO LFD	LFD	MBE 2nd 2015i, Std 17th	2002 AASHTO Std. Specifications
AASHTO LRFD	LRFD	LRFD 7th 2015i	2014 (2015 interim) AASHTO LRFD Spec
AASHTO LRFR	LRFR	MBE 2nd 2015i, LRFD 7th 2015i	2011 (2015 Interim) AASHTO LRFR Spec.
AASHTO Truss LFD	LFD	MBE 2nd 2015i, Std 17th	2002 AASHTO Std. Specifications
AASHTO Truss LRFR	LRFR	MBE 2nd 2015i, LRFD 7th 2015i	2011 (2015 Interim) AASHTO LRFR Spec.
BRASS ASD	ASD		N/A
BRASS LFD	LFD		
BRASS LRFD	LRFD		
BRASS LRFR	LRFR		
Madero ASD	ASD	MCEB 1st, Std 16th	N/A

The following table summarizes the changes that were approved in the summer of 2014 and incorporated into BrDR 6.7. Some changes will affect the rating results between version 6.6 and 6.7, other changes will not. Those changes that will not affect the rating results are noted in the Comment column below.

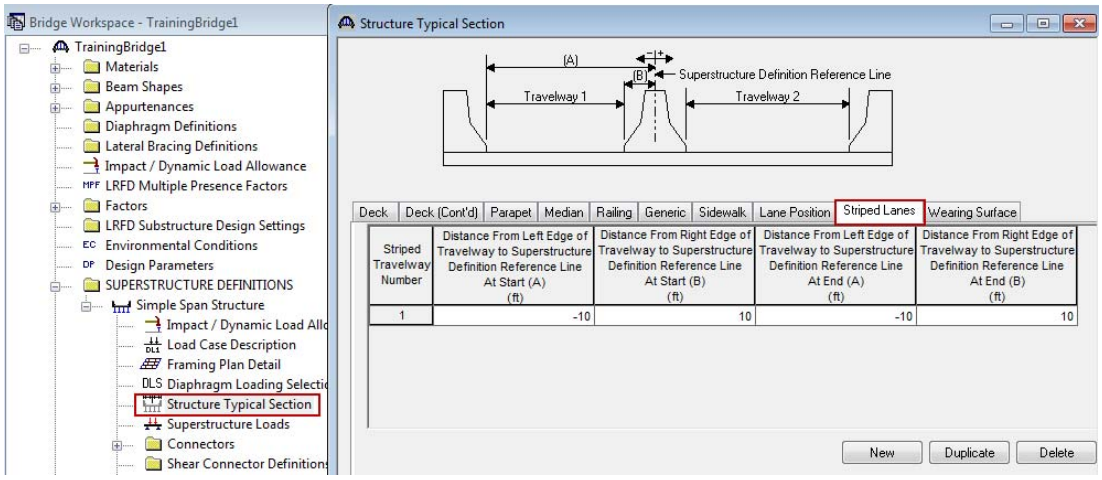
SCOBS Agenda Item	Article Number	Summary of Change	Comment
1	6A.2.3.2	Item #1:	
		• Load rating performed by placing truck loads only within striped lane • Load rating for all live loads	
	6B.6.2.2	Item #4:	
		• Load rating performed by placing truck loads only within striped lane • Load rating for all live loads	
24	6.12.2.2.4	Item #1:	
		• Remove <= Mp in equation 6.12.2.2.4-2	
		Item #2:	
		• Add equation 6.12.2.2.4-5	
		Item #3:	
		• Remove check for stem and equation 6.12.2.2.4-7	
25	6.5.4.2	Item #3	
		Revise bullets in bullet list: • For axial compression, composite columns	
26	6.10.11.1.3	Item #5 & #6:	
		• Revise eq. 6.10.11.1.3-9 and 6.10.11.1.3-8 and renumber to 6.10.11.1.3-7 and 6.10.11.1.3-8. Renumber previous equation 6.10.11.1.3-7/8 to 6.10.11.1.3-9/10	

MBE 6A.2.3.2/6B.6.2.2 Rate based on striped lanes

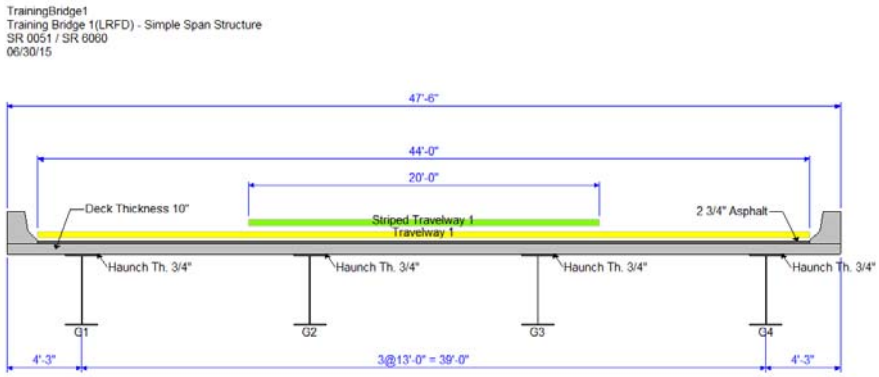
Check “Consider striped lanes for rating” under Superstructure Definition window->Analysis tab as shown below:



Open “Structure Typical Section” window and use “Striped Lanes” tab to define the striped lane as shown below:



The schematic of “Structure Typical Section” shows the striped lane as below:



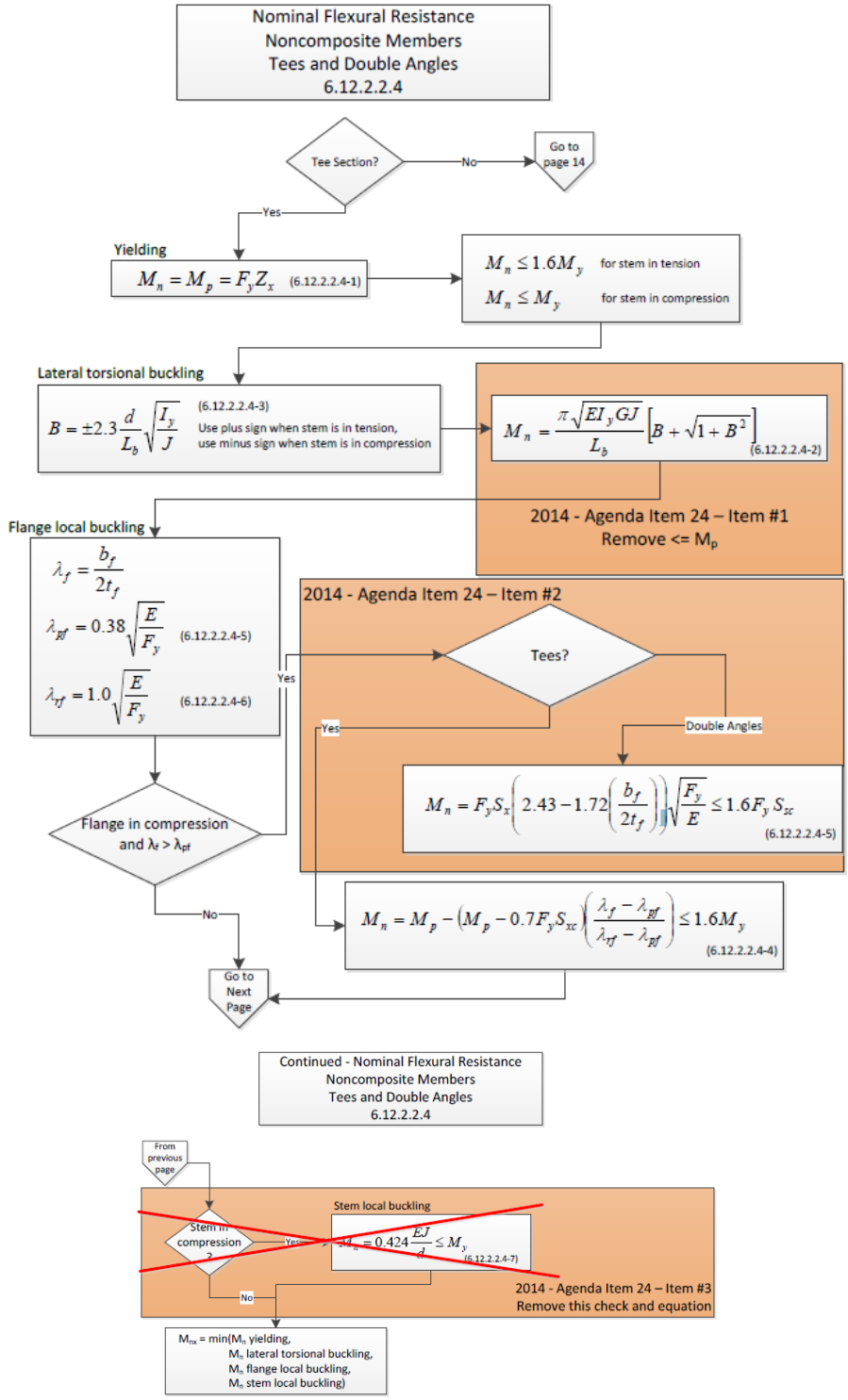
As part of this new feature, wheel loads are placed right at the edges of the striped lanes instead of being 2’ from the lane edge.

Striped lanes are considered in the following features:

- LFR DF calculation from the UI Compute button and at analysis time when DF’s don’t exist in the UI
- LRFR DF calculation at analysis time when DF’s don’t exist in the UI. When the LRFD DF are computed using the Compute from Typical Section button in the UI, the striped lanes are not used. This is because BrDR does not know if the distribution factors are being computed for an LRFD design review or an LRFR rating
- Transverse loading for floorbeams
- Distribution Factor - Line Girder analysis (NSG)
- 3D FEM Vehicle Path Analysis
- 3D FEM analysis

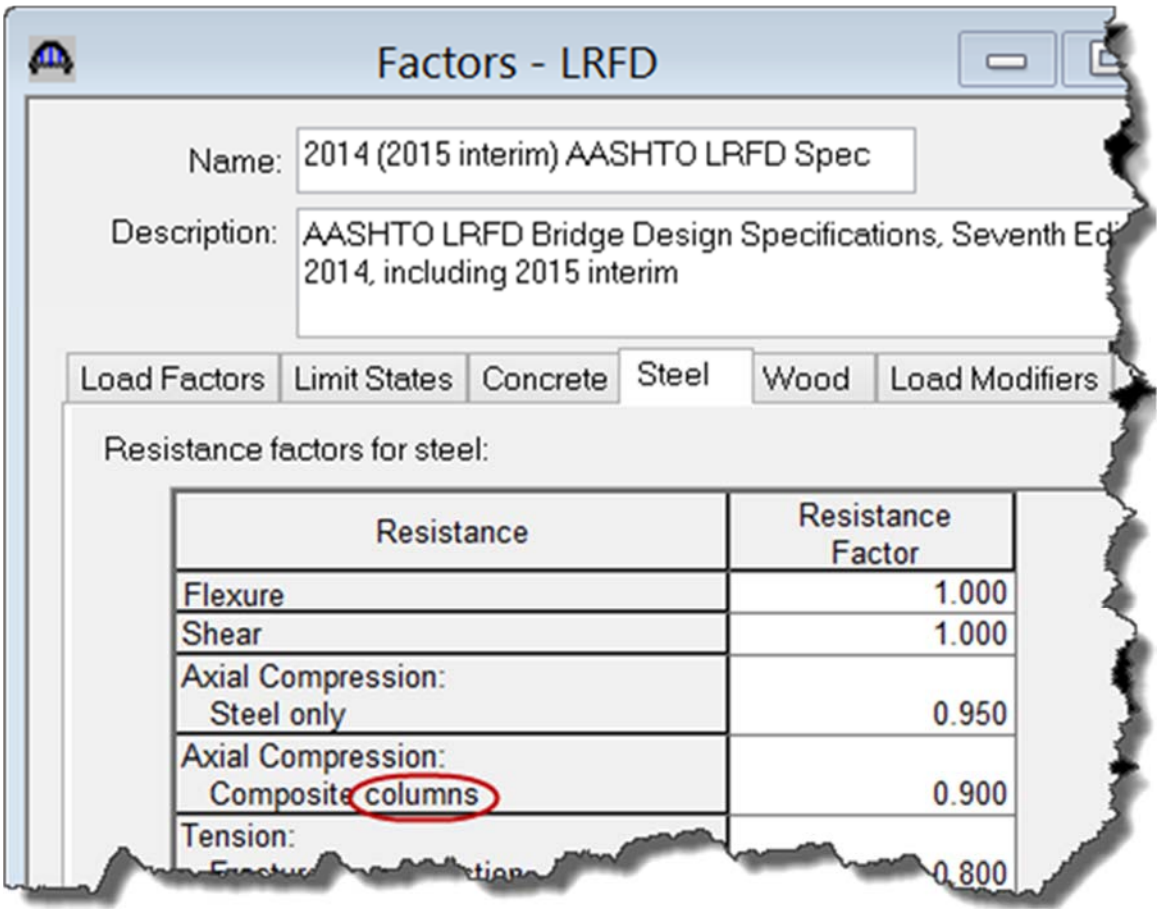
LRFD 6.12.2.2.4 (LRFR of truss members)

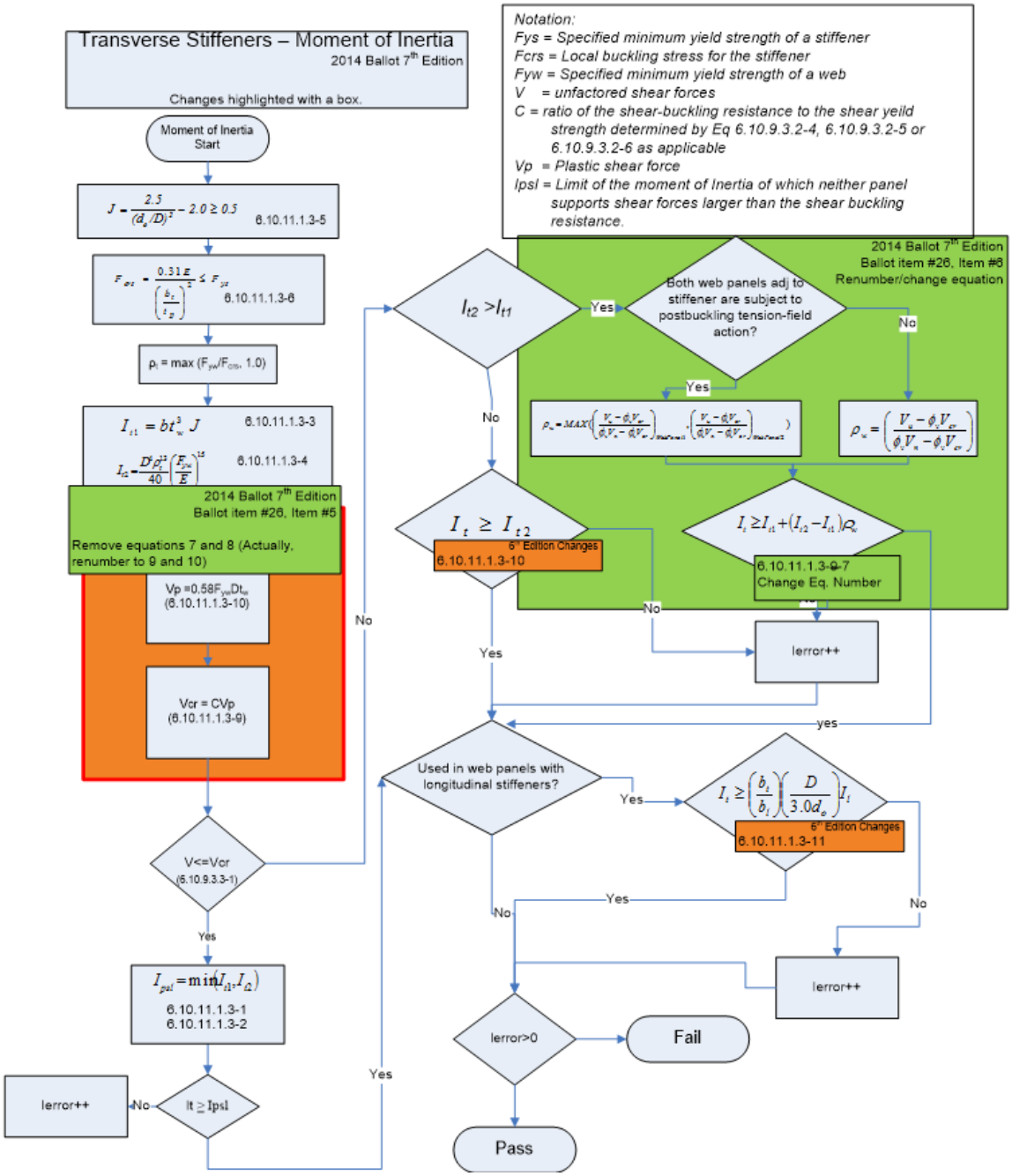
Agenda Item#24 items# 1, 2 and 3 are illustrated below in the flowchart provided from AASHTO LRFR Truss Method of Solution for BrDR 6.7.



LRFD 6.5.4.2 revise text label

Agenda Item# 25, item#3 covers this update as shown below:



LRFD 6.10.11.1.3 new equations for transverse stiffener MOI

Agenda Item#26 items# 5 and 6 are illustrated below in the flowchart provided from AASHTO LRFD LRFR Superstructure Method of Solution Manual for BrDR 6.7.