

2017 Ohio Bridge conference

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DEADLINES

- **SHV LOAD RATINGS AND POSTING (using LFR or LRFR method)**
 - GROUP B
 - $1.00 \leq \text{Controlling Op RF} < 1.35$Dec 31, 2022
 - GROUP C
 - Posted bridges, controlling Op RF < 1.00.....Dec 31, 2017

NOTE: Allowable Stress not allowed
Deadline includes posting of sign
All new Bridge Load Ratings include SHV

DEADLINES

- **EV LOAD RATINGS AND POSTING (NBI bridges within 1 mile of on-off ramp)**
 - GROUP 1..... next re-rating, no later than Dec 31, 2022
 - HS-20 Inv RF ≥ 1.00 using LFR or ASR method
 - HL-93 Inv RF ≥ 0.90 using LRFR method
 - GROUP 2.....next re-rating, no later than Dec 31, 2019
 - All bridges not included above

NOTE: Allowable Stress not allowed
Deadline includes posting of sign
All new Bridge Load Ratings include EV when within a mile

DEADLINES

- **SCOUR EVALUATIONS**

- Channel Cross Sections.....October 31, 2018
 - UW Inspections
 - Scour Critical Bridges (Item 113 = 3,2,1,0)
 - Baseline Photos inadequate
 - Cannot agree to Global Statement
- Baseline Photos.....October 31, 2018
 - All bridges not requiring Channel Cross Sections
 - 2 minimum (upstream & downstream)
 - Using Photos = Agreeing to Global Statement

NOTE: Repeat every 5 years, or more often if changes appear

QAR Results

- Bridge Inspection Frequency: 8 Some bridges in 25th month
- Bridge Condition Ratings: 8 Some bridges use +/- 1 allowance
- Bridge Inventory: 7 GR Survey, Appr Rdwy alignment, Appr widths
- Bridge Files: 6 FC Insp procedure
- Bridge Load Ratings: 9
- Bridge SMS Input: 6 RF, Method of Rating, missing items, etc..
- Bridge Load Limit signs: 5 Some signs don't match load rating
- Lunch: 8 No Pie

SMS Input

- Use BR-100
 - Use LATEST ONE – dated 6/2/17
 - Look At EV box (default is checked)

OHIO LEGAL VEHICLES			
Loading Type	GVW (Tons)	Operating Rating RF	Legal Weight (Tons)
2F1	15	1.065	15.00
3F1	23	1.000	23.00
4F1	27	0.800	21.60
5C1	40	0.733	29.32

SPECIALIZED HAULING VEHICLES (SHV)			
Loading Type	GVW (Tons)	Operating Rating RF	Legal Weight (Tons)
SU4	27	0.634	17.12
SU5	31	.8	31.00
SU6	34.75	0.800	27.80
SU7	38.75	1.000	38.75

EMERGENCY VEHICLES (EV) - Check box to include EV <input type="checkbox"/>			
Loading Type	GVW (Tons)	Operating Rating RF	Legal Weight (Tons)
EV2	28.75	0.631	18.14
EV3	43	0.410	17.63

DESIGN VEHICLE	
Loading Type	Operating Rating RF
HS20 Loading	1.250

Overall Legal Posting Rating (Does not include EV's)	
BRIDGE POSTING RECOMMENDED BY RATING	LOAD POSTING
Sign Posting Recommendation:	W
	SI
	2
	3
	4
	5
	6+
	4

AGENCY/FIRM/OFFICE			REPORT DATE:	
RATED BY	PE NUMBER	PHONE NUMBER	EMAIL	

Check box to include EV <input type="checkbox"/>	
0.631	18.14
0.410	17.63

SMS Input

- SMS coding input Bottom 2nd Tab



- Except for engineering judgment and testing

LOAD RATING			
(31) Design Load:	6 - HS20-44 & Alternate Military Loading	(703) Inventory Rating Load GVW:	36.00
(63) Operation Rating Method:	6 - Load Factor (LF) rating reported by rating factor (RF)	(704) Load Rating Date:	5/26/2017
(64) Operating Rating Factor:	1.250	(705) Load Rater First Name:	
(700) Operating Rating Load:	HS20 Loading	(706) Load Rater Last Name:	
(701) Operating Rating Load GVW:	36.00 tons	(707) Load Rater Ohio PE Number:	
(65) Inventory Rating Method:	6 - Load Factor (LF) rating reported by rating factor (RF)	(708) Load Rating Software:	3 - AASHTO BrR (VIRTIS)
(66) Inventory Rating Factor:	1.000	(709) Rating Source:	1 - Plan information available
(702) Inventory Rating Load:	HS20 Loading	(711) Live Load Response:	E-Excessive
(41) **Open, Posted or Closed:	P - Posted for Load-Carrying Restriction		
**User can select from dropdown list to modify			
OHIO LEGAL LOADS			
(715) Ohio Legal Load 1:	2F1	(724) Ohio Legal Load 4:	5C1
(716) Ohio Legal Load 1, GVW:	15 tons	(725) Ohio Legal Load 4, GVW:	40
(717) Ohio Legal Load 1, Rating Factor:	1.065	(726) Ohio Legal Load 4, Rating Factor:	0.733

SMS Input

- Ohio Legal Loads (lower half of SMS Load Rating screen)
 - Legal Load 1: 2F1 truck
 - Legal Load 2: 3F1 truck
 - Legal Load 3: Select Controlling RF and truck – 4F1 vs. SU4
 - Legal Load 4: 5C1 Truck
 - Legal Load 5: SU5 Truck
 - Legal Load 6: Select Controlling RF and truck – SU6 vs. SU7

SMS Input

- Use SMS Coding Guide Appendix L


**How to Code Load Rating of a Bridge with Assigned Load Rating {For Culverts
Designed Using ASTM C1577 (LRFD), C1433 (LFD), C789 (LFD) & C850 (LFD)}**

Rating Load: HL93

<u>Item#</u>	<u>Description</u>	<u>Code</u>	<u>Notes</u>
63	Operating Method of Rating	F	Assigned ratings based on LRFR
64	Operating Rating	1.250	RF=1.250
65	Inventory Method of Rating	F	Assigned ratings based on LRFR; same as #63
66	Inventory Rating	1.000	RF=1.000
700	Operating Rating Load	3	HL93 Loading; same as #702
702	Inventory Rating Load	3	HL93 Loading; same as #700
704	Load Rating Date	9/9/2013	Do not put future date or prior to date-built
708	Software of Rating Analysis	7	Combination
709	Rating Source	1	Plans & Information available for load rating
733	Posting Required by Rating	N	No posting based on load rating
734	Ohio Percent of Legal Loads	150	Assuming 150% for a new structure

Load Limit Signs

- Use BR-100 – sign display SHV

BY RATING	
Sign Posting Recommendation:	WEIGHT LIMIT SINGLE UNIT
	2 AXLE 15 T
	3 AXLE 23 T
	4 AXLE 17 T
	5 AXLE 31 T
	6+ AXLE 28 T
	 29 T
REPORT DATE:	5/28/2017

Load Limit Signs

- Use BR-100 – sign Display EV

	BY RATING	EMERGENCY VEHICLE
	Sign Posting Recommendation:	WEIGHT LIMIT
		SINGLE AXLE 11 T
		TANDEM 13 T
REPORT DATE:		5/28/2017

Load Limit Signs

- Use MATH

- $$RF = \frac{\text{Calculated Safe load}}{\text{Gross Vehicle Weight}}$$

or (rework equation)

- $\text{Calculated Safe Load} = RF * \text{Gross Vehicle Weight}$

Also read as:

- $\text{Load Limit} = RF * \text{Legal Vehicle Weight}$
(cannot exceed legal vehicle weight)



WEIGHT
LIMIT


 20 T

 22 T

 25 T

 T

R12-H5

WEIGHT LIMIT	
SINGLE UNIT	
2 AXLE	10T
3 AXLE	14T
4 AXLE	18T
5 AXLE	22T
6+ AXLE	24T
	40T

LINKS

- **BR-100**

- ftp://ftp.dot.state.oh.us/pub/Structures/BMS/Web_download_files/Miscellaneous/
- Select file: BR100_Rating_Summary_SHV_EV_2017_06_02.xlsx, or latest version

- **SHV Policy**

- http://www.dot.state.oh.us/Divisions/Engineering/Structures/BridgeManagementSection/StructureRatingSuperload/Documents/SHV_Implementation_Plan_ODOT_FH_WA-V2.2.pdf

- **SHV Load Diagrams**

- ftp://ftp.dot.state.oh.us/pub/Structures/BMS/Web_download_files/Miscellaneous/SHV_Loads_REV_2-13-2017.pdf

LINKS

- **EV Policy**

- <http://www.dot.state.oh.us/Divisions/Engineering/Structures/BridgeManagementSection/StructureRatingSuperload/Documents/ODOT%20POA%20Implementation%20Rating%20for%20EV%20InterstateBridges%201%200.pdf>

- **Scour Evaluation/Channel X Section Policy**

- http://www.dot.state.oh.us/Divisions/Engineering/Structures/bridge%20operations%20and%20maintenance/Snooper%20Operations/Channel%20Cross%20Section%20Procedure_01262017.pdf

LINKS

- **SHV & EV Sign Details**

- http://www.dot.state.oh.us/Divisions/Engineering/Roadway/DesignStandards/traffic/SDMM/Documents/SDMM_072117RevisionSet_070517.pdf
- Beginning at page 25



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