



## ASR/LFR BRIDGE LOAD RATING SUMMARY

SECTION 1 - GENERAL BRIDGE DATA						
(8) Asset ID 07937		Route Type Secondary road		(27) Year Built 1985	(90) Date of Inspection 02/2019	
(9) Bridge Location 4 MI NW OF COLUMBIA			(7) Facility Carried S-40-31		(6) Feature Intersected/Route Crossing I-26	
(49) Length 638 ft.	(11) Milepost 0.214	(2) District 1	(3) County RICHLAND	(22) Owner SCDOT	(418) Conditions During Rating (NBI Item 58, NBI Item 59, NBI Item 60) 6, 6, 7	
(43, 44, 45, & 46) Bridge Description Continuous 4 Span SCS Bridge				(31) Design Load HS-20+Mod	(108) Existing Wearing Surface Type & Depth MONOLITHIC CONCRETE	
Rating Program & Version BrR 6.8.4 - AASHTO Engine			Rating Program & Version N/A		Rating Method LFR	AASHTO Reference MBE 3rd Edition, w/ 2019 Interims
(58) Deck 6 Satisfactory		(59) Superstructure 7 Good		(60) Substructure 7 Good	(62) Culvert N N/A (NBI)	(113) Scour Critical N Not Over Waterway

SECTION 2A - INVENTORY RATINGS - Design Vehicles and AASHTO Legal Trucks							
Rating Vehicle	Controlling Configuration	Weight (Tons)	Controlling Member	Controlling Location	Controlling Limit State	Rating Factor	Rating (Tons)
H-20	Truck	20	G9	2.37	Design Flexure - Steel	1.473	29
H-20 Lane	Lane	20	G8	2.36	Design Flexure - Steel	0.896	17
HS-20	Truck	36	G9	2.37	Design Flexure - Steel	0.897	32
HS-20 Lane	Lane	36	G8	2.36	Design Flexure - Steel	0.896	32
Alternate Military Loading	Truck	24	G9	2.37	Design Flexure - Steel	1.214	29
Modified AASHTO SC - Type 3	Truck	25	G9	2.37	Design Flexure - Steel	1.251	31
Modified AASHTO SC - Type 3S2	Truck	36.6	G8	2.36	Design Flexure - Steel	0.981	35
AASHTO - Type 3-3	Truck	40	G8	2.36	Design Flexure - Steel	0.969	38

SECTION 2B - INVENTORY RATINGS - Specialized Hauling Vehicles (SHV)							
Rating Vehicle	Controlling Configuration	Weight (Tons)	Controlling Member	Controlling Location	Controlling Limit State	Rating Factor	Rating (Tons)
SC-SHV1A	Truck	32.5	G9	2.37	Design Flexure - Steel	0.937	30
SC-SHV1B	Truck	35	G9	2.37	Design Flexure - Steel	0.876	30
SC-SHV2A	Truck	33	G9	2.37	Design Flexure - Steel	0.928	30
SC-SHV2B	Truck	40	G9	2.37	Design Flexure - Steel	0.776	31
SC-SHV3A	Truck	42.5	G9	2.37	Design Flexure - Steel	0.836	35
SC-SHV3B	Truck	45	G9	2.37	Design Flexure - Steel	0.790	35
SC Representative School Bus	Truck	17.525	G9	2.37	Design Flexure - Steel	1.797	31
SC-SU2	Truck	20	G9	2.37	Design Flexure - Steel	1.557	31
SU4	Truck	27	G9	2.37	Design Flexure - Steel	1.141	30
SU5	Truck	31	G9	2.37	Design Flexure - Steel	1.011	31
SU6	Truck	34.75	G9	2.37	Design Flexure - Steel	0.910	31
SU7	Truck	38.75	G9	2.37	Design Flexure - Steel	0.827	32

This ASR/LFR Load Rating is based on:  Design Plans     Design Plans & Approved Shop Drawings     Other (Please explain in Remarks)

As-Built Plans

SECTION 3 - BRIDGE LOAD RATING SUMMARY		
Controlling Legal Truck EV3	Load Posting Required? If Yes, complete Signing/Posting Form. No	Controlling Legal Load Rating Factor (at Operating level) 1.211

SECTION 4 - REMARKS & SIGN/SEAL			
Load Rating Engineer		Quality Control Engineer	
Name: Katherine Wisdom		Name: William Johnson	
Company/Title: HDR/Bridge Engineer		Company/Title: HDR / Bridge Engineer	
Date: 6/24/2020		Date: 7/9/2020	
Remarks: 1. As-let plans 3240.378.6 were used for the rating. 2. Traffic data was input into BrR using Directional % = 55% and Truck % = 3%. 3. The controlling location represents the span number and controlling point (i.e. controlling location 1.x for Span 1, 2.x for Span 2, etc.). 4. A load of 0.016 ksf was applied to account for the weight of SIP forms and the extra concrete in bays 1-4 and 6-9.. 5. Appurtenance dead loads were distributed to the 3 adjacent girders, except for the median. The median was distributed to the 4 adjacent girders. 6. Overhead sign dimensions not shown in plans. Dimensions based on Site Assessment dated 09/25/2019. Load input into BrR as a point load and applied to first three girders as composite load. Assumed 20 psf of sign area for weight. 7. The average overhang was used since the variation in this width is not significant. 8. Sacrificial wearing surface = 0" per LRGD section 11.2.1.1. 9. An additional 10% of self-load was applied to all steel girders to account for splice plates and transverse intermediate stiffeners as well as welds, bolts, etc.		<input checked="" type="checkbox"/> Structure is part of QA sample set. Quality Assurance Engineer Name: Gerald H. Jones, P.E. Company/Title: Michael Baker International/Bridge Engineer Date: 7/28/2020	
		 8/26/2020	



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Version 1.0

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SECTION 1 (PAGE 2) - GENERAL BRIDGE DATA								
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Rating Program & Version BrR 6.8.4 - AASHTO Engine			Rating Program & Version N/A			Rating Method LFR		AASHTO Reference MBE 3rd Edition, w/ 2019 Interims
(58) Deck 6 Satisfactory		(59) Superstructure 7 Good		(60) Substructure 7 Good		(62) Culvert N N/A (NBI)		(113) Scour Critical N Not Over Waterway

SECTION 5 - OPERATING RATINGS - Design Vehicles & AASHTO Legal Trucks							
Rating Vehicle	Controlling Configuration	Weight (Tons)	Controlling Member	Controlling Location	Controlling Limit State	Rating Factor	Rating (Tons)
H-20	Truck	20	G9	2.37	Design Flexure - Steel	2.460	49
H-20 Lane	Lane	20	G8	2.36	Design Flexure - Steel	1.496	29
HS-20	Truck	36	G9	2.37	Design Flexure - Steel	1.497	53
HS-20 Lane	Lane	36	G8	2.36	Design Flexure - Steel	1.496	53
Alternate Military Loading	Truck	24	G9	2.37	Design Flexure - Steel	2.028	48
Modified AASHTO SC - Type 3	Truck	25	G9	2.37	Design Flexure - Steel	2.090	52
Modified AASHTO SC - Type 3S2	Truck	36.6	G8	2.36	Design Flexure - Steel	1.637	59
AASHTO - Type 3-3	Truck	40	G8	2.36	Design Flexure - Steel	1.618	64

SECTION 6A - OPERATING RATINGS - SC Specialized Hauling Vehicles (SHV) - Legal on Non-Interstate and Permit on Interstate							
Rating Vehicle	Controlling Configuration	Weight (Tons)	Controlling Member	Controlling Location	Controlling Limit State	Rating Factor	Rating (Tons)
SC-SHV1A	Truck	32.5	G9	2.37	Design Flexure - Steel	1.565	50
SC-SHV1B	Truck	35	G9	2.37	Design Flexure - Steel	1.463	51
SC-SHV2A	Truck	33	G9	2.37	Design Flexure - Steel	1.550	51
SC-SHV2B	Truck	40	G9	2.37	Design Flexure - Steel	1.295	51
SC-SHV3A	Truck	42.5	G9	2.37	Design Flexure - Steel	1.396	59
SC-SHV3B	Truck	45	G9	2.37	Design Flexure - Steel	1.320	59

SECTION 6B - OPERATING RATINGS - Two Miscellaneous SHV & AASHTO SHV - Legal on all roads							
Rating Vehicle	Controlling Configuration	Weight (Tons)	Controlling Member	Controlling Location	Controlling Limit State	Rating Factor	Rating (Tons)
SC Representative School Bus	Truck	17.525	G9	2.37	Design Flexure - Steel	3.000	52
SC-SU2	Truck	20	G9	2.37	Design Flexure - Steel	2.600	52
SU4	Truck	27	G9	2.37	Design Flexure - Steel	1.906	51
SU5	Truck	31	G9	2.37	Design Flexure - Steel	1.689	52
SU6	Truck	34.75	G9	2.37	Design Flexure - Steel	1.520	52
SU7	Truck	38.75	G9	2.37	Design Flexure - Steel	1.381	53

SECTION 6C - OPERATING RATINGS - Standard Permit Vehicles & Typical Cranes							
Rating Vehicle	Controlling Configuration	Weight (Tons)	Controlling Member	Controlling Location	Controlling Limit State	Rating Factor	Rating (Tons)
SC - 100k	Truck	50	G9	2.37	Design Flexure - Steel	1.216	60
SC - 120k	Truck	60	G8	2.36	Design Flexure - Steel	1.017	61
SC - 130k	Truck	65	G8	2.36	Design Flexure - Steel	0.949	61
SC Crane #544726	Truck	80	G9	2.37	Design Flexure - Steel	0.793	63
SC Crane #527568	Truck	88.85	G8	2.36	Design Flexure - Steel	0.720	63

SECTION 6D - OPERATING RATINGS - Emergency Vehicles (EV)							
Rating Vehicle	Controlling Configuration	Weight (Tons)	Controlling Member	Controlling Location	Controlling Limit State	Rating Factor	Rating (Tons)
EV2	Truck	28.75	G9	2.37	Design Flexure - Steel	1.807	51
EV3	Truck	43	G9	2.37	Design Flexure - Steel	1.211	52

### Remarks:

10. Utilities on left girder Span 3 and right girder Spans 1, 3-5 were estimated to be 1" diameter std. wt. steel pipe. Utility on left girder Span 4 was estimated to be 2" diameter std. wt. steel pipe.
11. A572 flange plates 1.5" and smaller assumed to be Grade 45. A572 flange plates larger than 1.5" assumed to be Grade 42.
12. Based on the 09/25/2019 site assessment, there is no measurable deterioration to warrant a deteriorated structure model in BrR.