

# 2015 OHIO BRIDGE CONFERENCE

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**Administrator**

**Office of Structural Engineering  
Ohio Department of Transportation**

**Load Rating  
SHV's**



# WHAT IS AN SHV?

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- Special Hauling Vehicle
- It is a legal truck
- SU designation = Single Unit



# WHAT IS AN SHV?



# WHAT IS AN SHV?





# WHAT IS AN SHV?



# WHAT IS AN SHV?





# WHAT IS REQUIRED?

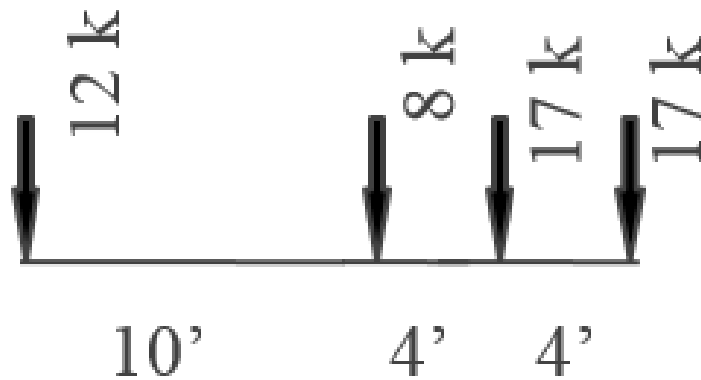
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- NCHRP 12-63 showed current AASHTO truck configurations don't capture demand from the SHV's.
- A simple comparison of ODOT Legal trucks with SHV's show a need to load rate for these vehicles.

# CONFIGURATIONS FOR SHV'S

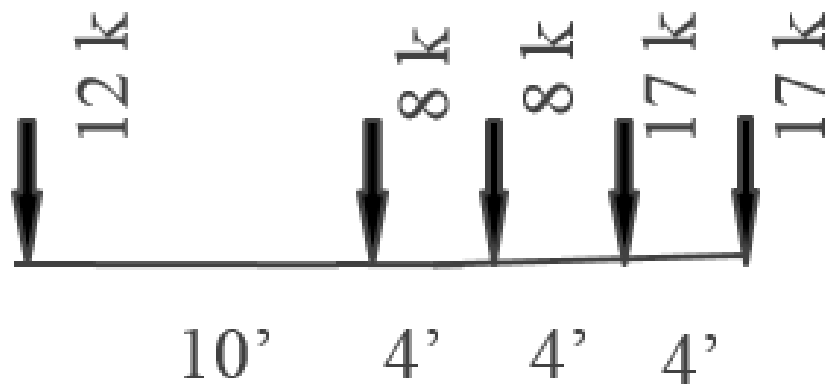
27 T; 18'

SU4



31T; 22'

SU5

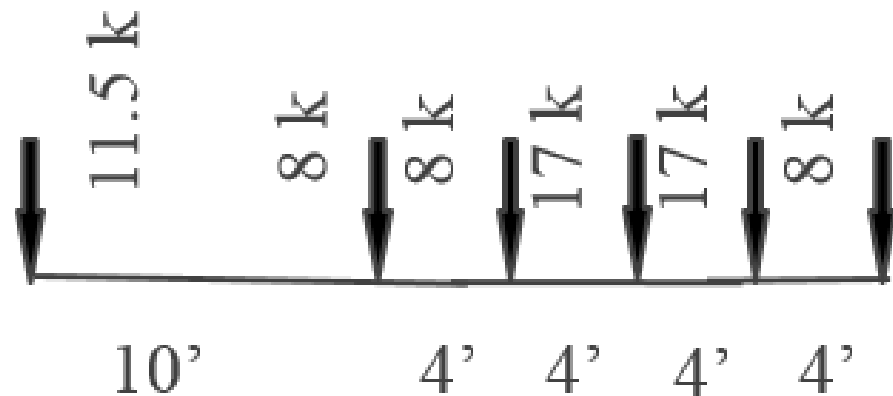




# CONFIGURATIONS FOR SHV'S

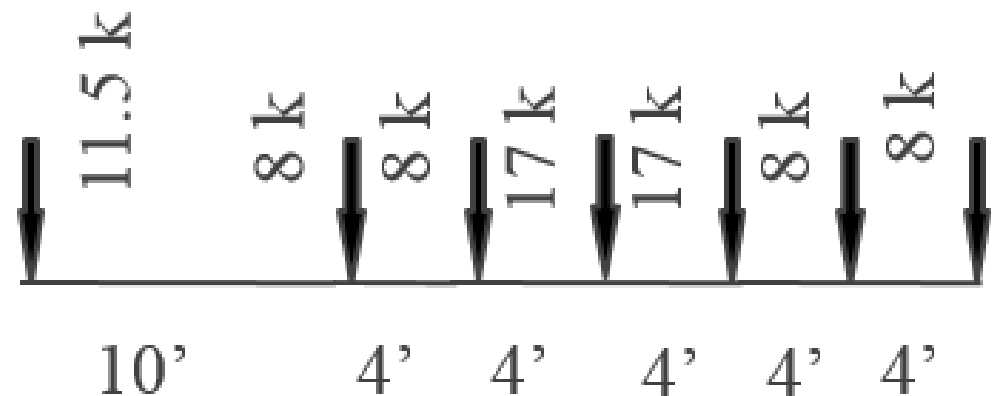
34.75T; 26'

SU6



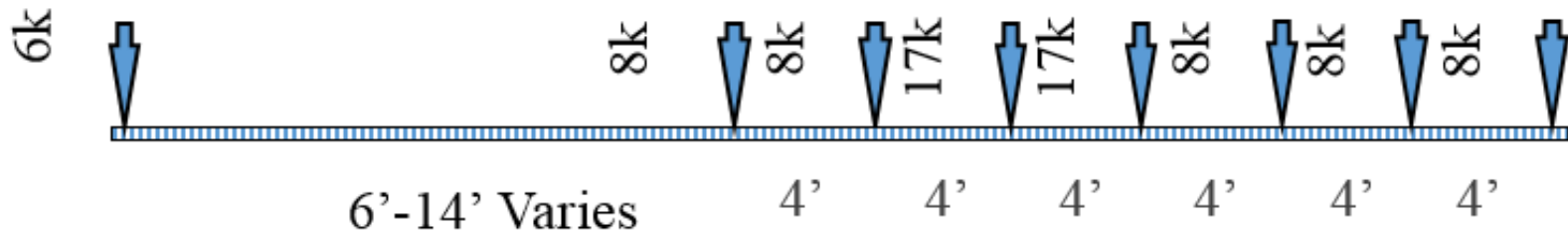
38.75T; 30'

SU7



# CONFIGURATIONS FOR SHV'S

Notional Rating Load (NRL); 40T; 30'-38'





# WHAT IS REQUIRED?

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- FHWA requires load rating for these vehicles to be completed.
- ODOT has prepared a proposed plan to load rate for SHV's.
  - Plan will be posted on ODOT's OSE web site.

# LOAD RATING PLAN – EXISTING BRIDGES

Group Inventory into 3 Groups:

- Group A – Ohio Legal RF  $\geq 1.35$
- Group B – Ohio Legal RF  $\geq 1.0$  and RF  $< 1.35$
- Group C – Ohio Legal RF  $< 1.0$  (posted bridges)



# LOAD RATING PLAN – EXISTING BRIDGES

## Group A

No Action Required

ODOT to prepare and submit study to FHWA to verify 1.35 threshold

# LOAD RATING PLAN – EXISTING BRIDGES

## Group B

- Re-rate per current method of analysis (LFR or LRFR).
- Prepare an updated BR-100 and post if needed
- Update SMS and inform Mark Stockman
- Complete by Dec. 31, 2022
- Approximate No. of County Bridges = 6,157




# LOAD RATING PLAN – EXISTING BRIDGES

## Group C

- Re-rate per current method of analysis (LFR or LRFR).
- Prepare an updated BR-100
- Install new posting sign
- Update SMS and inform Mark Stockman
- Complete by Jan. 1, 2018
- Approximate No. of County Bridges = 1,172

# NEW BR-100

 <b>BRIDGE LOAD RATING SUMMARY REPORT</b> <b>OFFICE OF STRUCTURAL ENGINEERING</b> <b>OHIO DEPARTMENT OF TRANSPORTATION</b>									
SFN		BRIDGE NUMBER		DISTRICT					
From BRIDGE NUMBER or Enter District									
ORIGINAL CONSTRUCTION YEAR	REHABILITATION YEAR	OVERALL STRUCTURE LENGTH	FEATURE INTERSECTION						
SPECIAL ASSUMPTIONS & COMMENTS									
PLEASE SELECT ON RIGHT, WHERE APPROPRIATE, BY USING THE DROP DOWN ARROW BUTTON									
LOAD RATING PURPOSE:		8 - Update Analysis Model and Software							
LOAD RATING SOFTWARE:		3 - BrR							
RATING SOURCE:		1 - Plan information available for load rating analysis (Default)							
RATING METHOD:		7 - Allowable Stress rating (ASR) using HS20 loading reported by RF							
ORIGINAL DESIGN LOADING:		6 - HS20-44 & Alternate Military Loading							
<b>STRUCTURE RATING SUMMARY</b>									
OHIO LEGAL				SPECIALIZED HAULING VEHICLES (SHV)					
Loading Type	GVW (Tons)	Rating Factor - RF		SAFE GVW (Tons)	Loading Type	GVW (Tons)	Rating Factor - RF		SAFE GVW (Tons)
		Inv.	Oper.				Oper.		
HS20 Loading	36	1.000	1.250	45	Notional Rating Load (NRL)	40	1.250		50
Ohio Legal - 2F1	15		1.000	15	SU4	27	1.000		27
Ohio Legal - 3F1	23		1.000	23	SU5	31	1.000		31
Ohio Legal - 4F1	27		1.000	27	SU6	34.75	1.000		34.75
Ohio Legal - 5C1	40		1.000	40	SU7	38.75	1.000		38.75
Ohio Legal Loads Overall Minimum Rating Factor					*SU4, SU5, SU6 and SU7 are ONLY required if RF for NRL < 1.0				
100%					RATING COMMENTS:				
Ohio Legal Loads Overall Controlling Truck									
Ohio Legal - 2F1									
OPEN, POSTED, OR CLOSED				A - OPEN, NO RESTRICTIONS					
BRIDGE POSTING REQUIRED BY RATING				NO load posting is recommended					
AGENCY/FIRM					REPORT DATE:				
RATED BY	PE #	PHONE NUMBER		EMAIL					
REVIEWED BY	PE #	PHONE NUMBER		EMAIL					

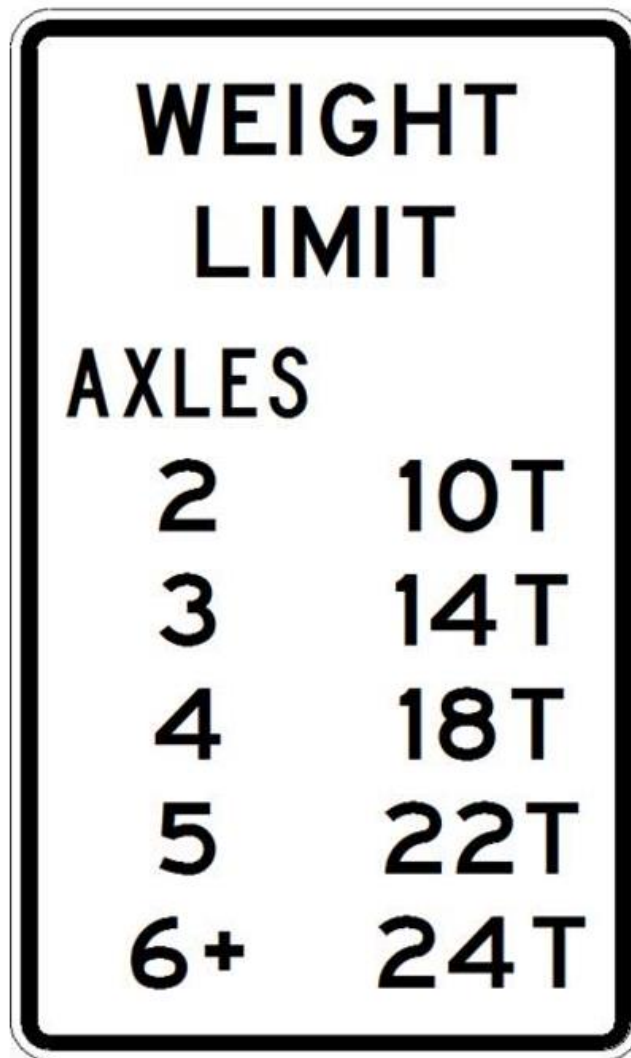
BR-100\_SMS (07/2015)

# NEW BR-100

SPECIALIZED HAULING VEHICLES (SHV)			
Loading Type	GVW (Tons)	Rating Factor - RF	SAFE GVW (Tons)
		Oper.	
<u>Notional Rating Load (NRL)</u>	40	1.250	50
SU4	27	1.000	27
SU5	31	1.000	31
SU6	34.75	1.000	34.75
SU7	38.75	1.000	38.75
*SU4, SU5, SU6 and SU7 are ONLY required if RF for NRL < 1.0			
RATING COMMENTS:			



# NEW LOAD POSTING SIGN



NEW BRIDGE LOAD POSTING SIGN

(Size: 36 inches by 60 inches)

# LOAD RATING PLAN – EXISTING BRIDGES

## How will ODOT Help?

- Spread Sheets will be updated
  - End of August – spread sheets updated with manual inputs.
  - End of September – automatically pull data from existing files. (some limitations)
- Expectations
  - Counties will update spread sheets

# LOAD RATING PLAN – EXISTING BRIDGES

## How will ODOT Help?

- Funding for bridges that were previously load rated by a consultant
  - 80/20 split
  - Counties hire consultants and be reimbursed by ODOT (details to be worked out)
- Expectations
  - Use same consultant as originally load rated bridge



# LOAD RATING PLAN – EXISTING BRIDGES

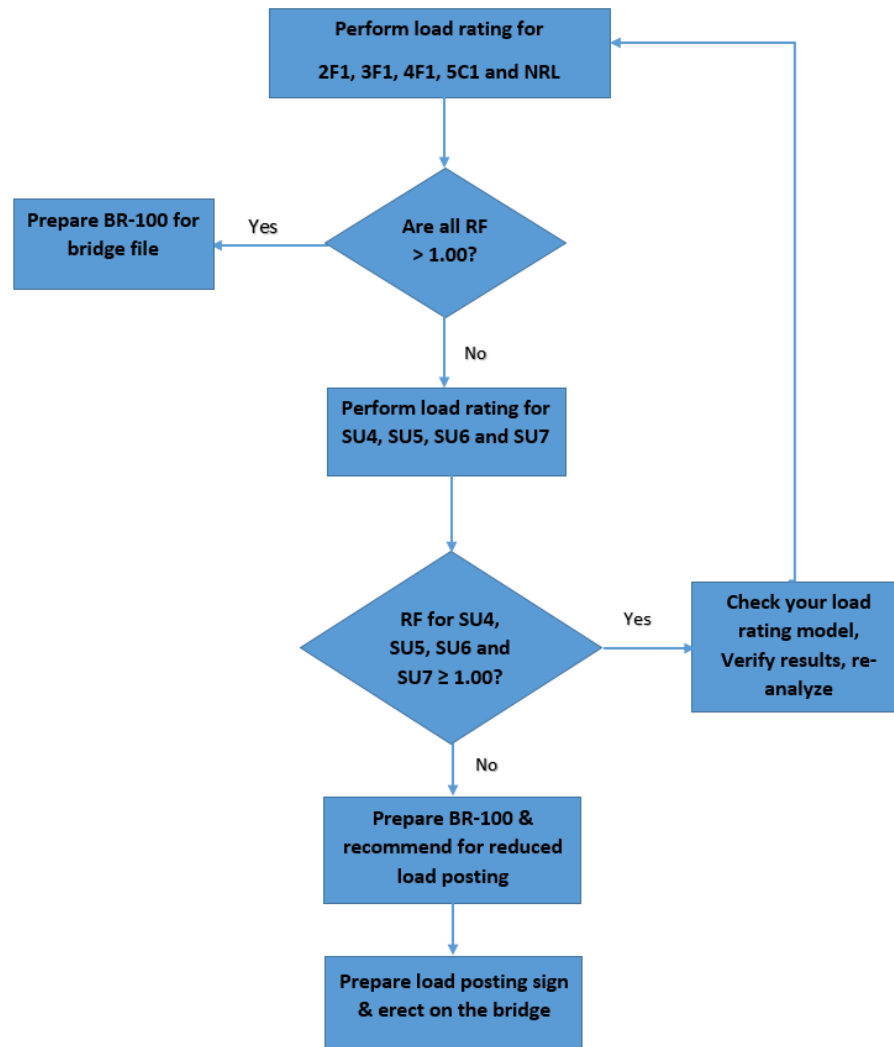
## How will ODOT Help?

- List of County bridges in Groups A, B, & C were sent to Mark Stockman to be sent out to Counties.
- ODOT will keep track of completed load ratings
  - Counties will update SMS
  - Counties will notify Mark S. to update spread sheet.
  - Spread sheet will be available for all to view so you will not need to run SMS query.

# LOAD RATING PLAN – NEW BRIDGES

- Load rating requirements for SHV's will be included in ODOT's BDM in the January 2016 release.

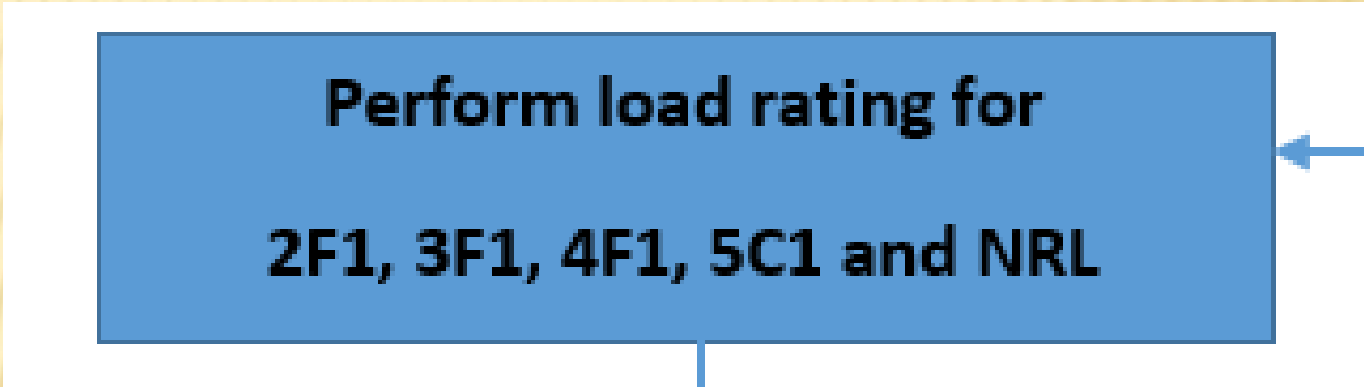
# LOAD RATING PLAN – NEW BRIDGES



Load Rating Flow Chart for Ohio Legal and SHV Load Rating



# LOAD RATING PLAN – NEW BRIDGES

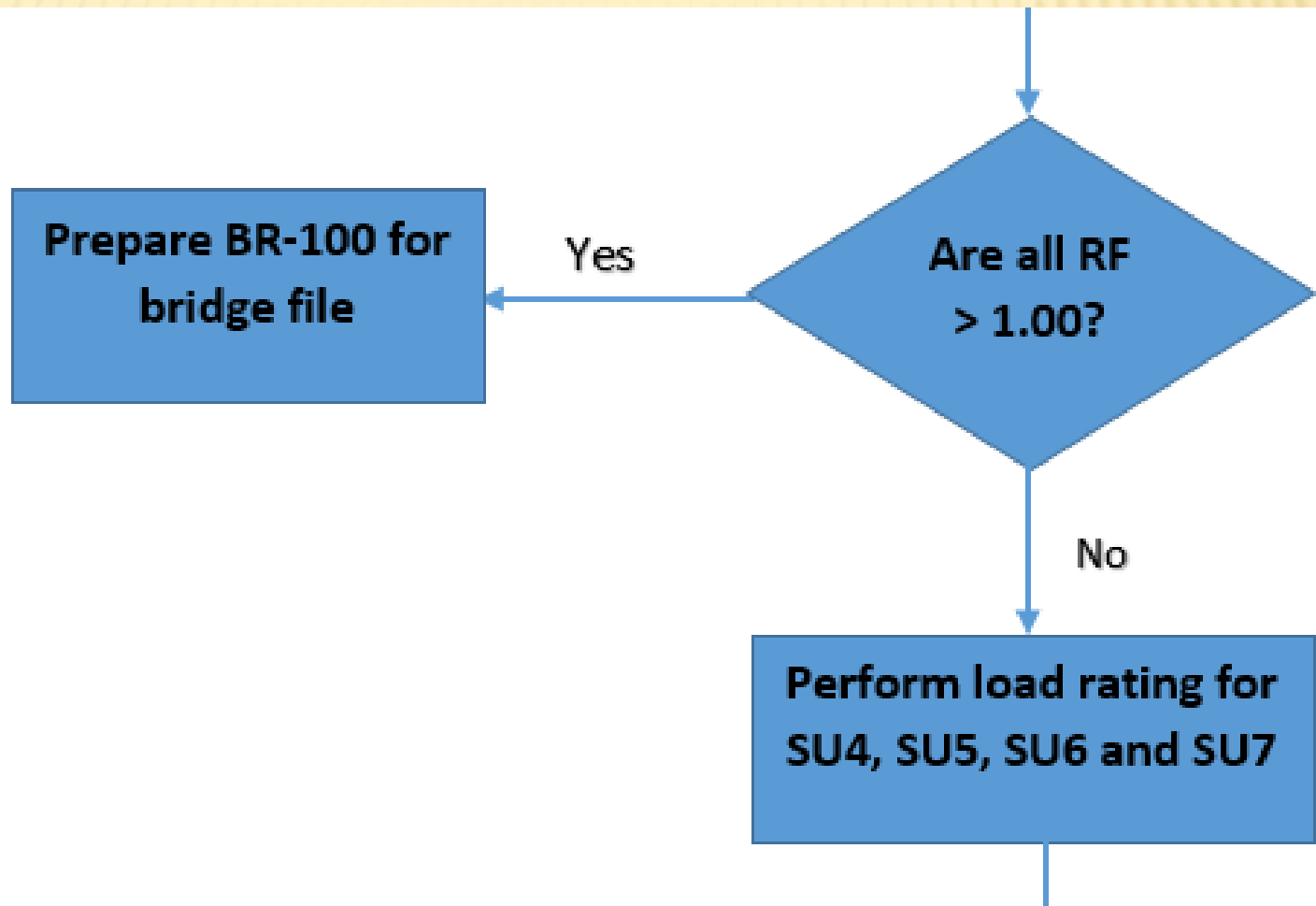


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graph TD; A[Perform load rating for 2F1, 3F1, 4F1, 5C1 and NRL] --> B[ ]
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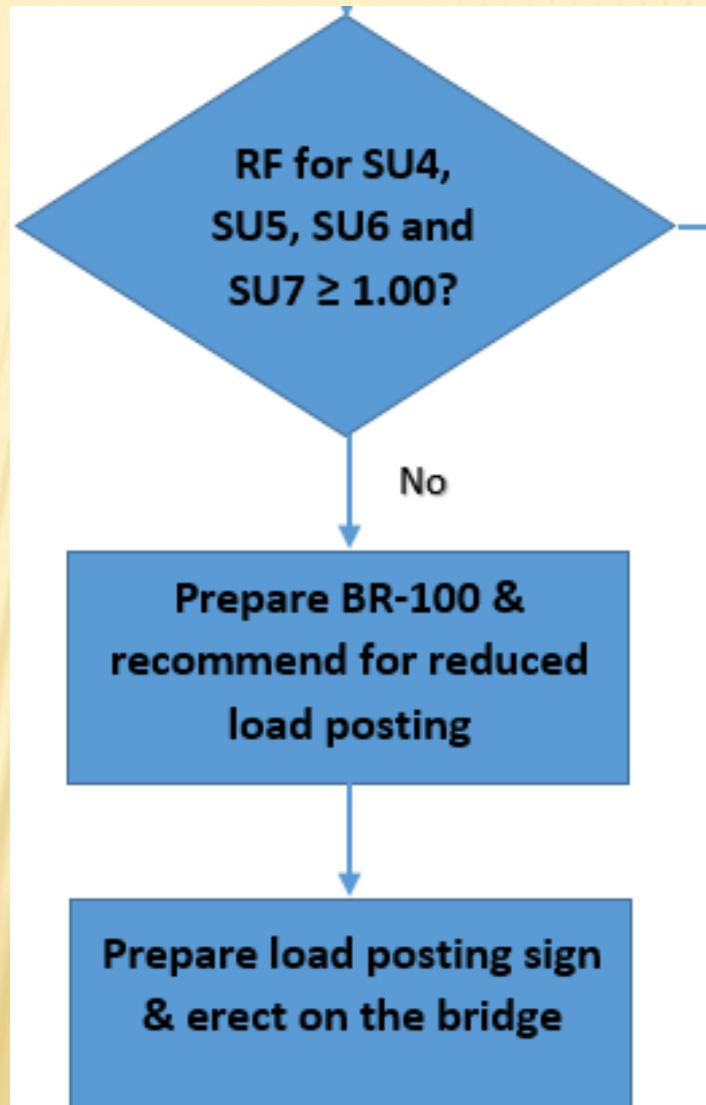
**Perform load rating for  
2F1, 3F1, 4F1, 5C1 and NRL**

The diagram consists of a blue rectangular box with a black border, containing the text 'Perform load rating for 2F1, 3F1, 4F1, 5C1 and NRL'. A blue arrow points from the right side of the box to the right, and a blue line extends from the bottom of the box downwards.

# LOAD RATING PLAN – NEW BRIDGES



# LOAD RATING PLAN – NEW BRIDGES





# QUESTIONS ?

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