

OHIO DEPARTMENT OF TRANSPORTATION

JOHN R. KASICH, GOVERNOR

JERRY WRAY, DIRECTOR



Ohio Bridge Conference HOT Topics

Tim Keller, P.E.
Administrator
ODOT Office of Structural Engineering

August 24, 2017

Agenda

Old Stuff

- SMS Update
- SHV Load Rating
- Concrete Patching

New Stuff

- Emergency Vehicles
- Posting Signs
- FRP Wraps
- MASH Implementation

SMS Update

- ☉ Yes, ODOT is still moving to a new bridge inventory and inspection system
- ☉ System requirements are complete
 - ☉ All bridge owners were represented
- ☉ RFP just completed DAS legal review
 - ☉ Addressing those comments
- ☉ RFP will go out on street “soon”
- ☉ “Go Live” – currently April 2019 at earliest

SHV Load Rating

Special Hauling Vehicles



SHV Load Rating

- OSE and FHWA meeting to discuss 1.35
- Bridge inventory divided into 3 Groups:
 - Group A – Ohio Legal RF ≥ 1.35
 - Group B – Ohio Legal RF ≥ 1.0 and RF < 1.35
 - Group C – Ohio Legal RF < 1.0 (posted bridges)
- Research team load rated 188 bridges
- FHWA wanted more work done
 - Research team will do parametric study comparing Live Load demands

SHV Load Rating

Load Rating Time Line

- Group A: Would not perform load rating for SHV until new load rating warranted
 - Condition of bridge changed
 - Overlay placed on bridge
- Group B: Deadline = December 31, 2022
- Group C: Deadline = January 1, 2018

Patching Concrete

- ④ Use of galvanic protection
- ④ Quantities have always been a challenge
 - ④ Sound and mark areas
 - ④ Length of time between sounding and work done.
- ④ Concrete patches over traffic
 - ④ ODOT has placed FRP over patch
 - ④ If patch fails, concrete will not fall on traffic

Patching Concrete

🕒 Consider pier stability

- 🕒 I-71 project in D-8
- 🕒 Very large change order
- 🕒 Concerned with column stability due to large amount of concrete removed

Patching Concrete



Patching Concrete



Patching Concrete



Emergency Vehicles

- ⌚ Transportation Bill Fast Act excluded emergency vehicles from weight limitations on the Interstate System
 - ⌚ Ohio Revised Code already had exclusion
- ⌚ FHWA defined 2 new legal vehicles to be used to load rate bridges
 - ⌚ EV2 – 57.5 kips on two axles
 - ⌚ EV3 – 86 kips on 3 axles

Emergency Vehicles

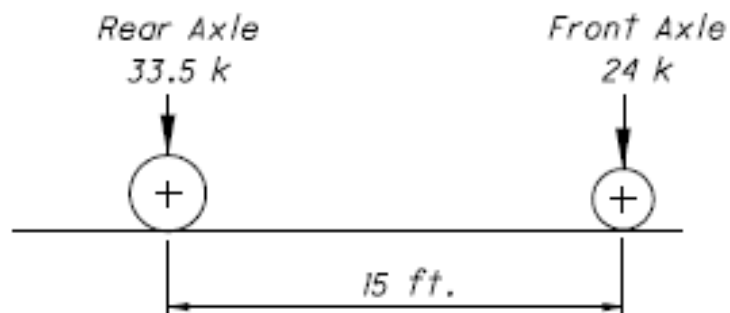
EMERGENCY VEHICLES

ALL AXLE LOADINGS

Conversion
1 kip = 1,000 lbs.
1 T = 2,000 lbs.
1 kip = 4.448 kN
1 m = 3.2808 ft.

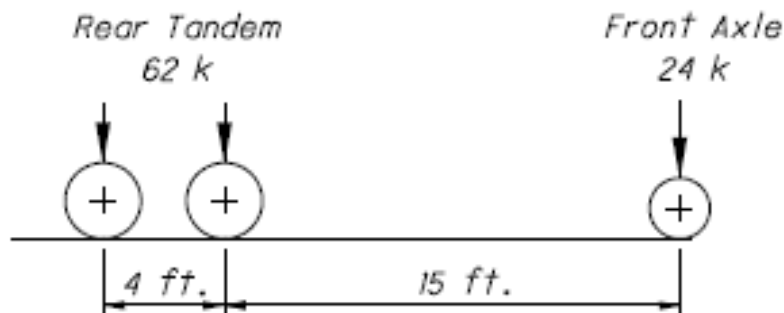
EV2

28.75T; 15 ft.



EV3

43T; 19 ft.



Emergency Vehicles

- ① Transportation Bill Fast Act included bridges on the interstates (including ramps) and within one mile drive distance to the end of any entrance or exit point of an interstate interchange

Emergency Vehicles

- ① FHWA Memo dated Nov. 3, 2016 required States to submit a Plan of Action (POA) to comply.
- ① ODOT submitted a POA on March 30, 2017 for compliance.
 - ① Two groups of bridges were identified
 - ① Defined “reasonable access” to match FHWA definition

Emergency Vehicles

- ④ Group 1
 - ④ Inventory rating above 1.0 for HS20 or above 0.90 for HL93
 - ④ Will not be re-load rated until next load rating is warranted
 - ④ add dead load (overlay)
 - ④ deterioration that reduces capacity

Emergency Vehicles

- ④ Group 2
 - ④ Inventory rating below 1.0 for HS 20 or below 0.9 for HL93.
 - ④ Dead line to load rate these bridges is December 30, 2019
 - ④ Bridges have been identified and distributed to bridge owners

Emergency Vehicles

- ① Should all bridges in Ohio be load rated with the EV vehicles
- ① ODOT's POA included a study on bridges not on interstate or reasonable access to Interstate to determine where these vehicles are operating
- ① ODOT included a study to look at potentially reducing the load factors for these vehicles.

Posting Signs

What Signs Can We Use? OMUTCD



R12-2



R12-4



R12-H5

2012 (SHV)

2017 (EV & SHV 5)



R12-1



R12-1



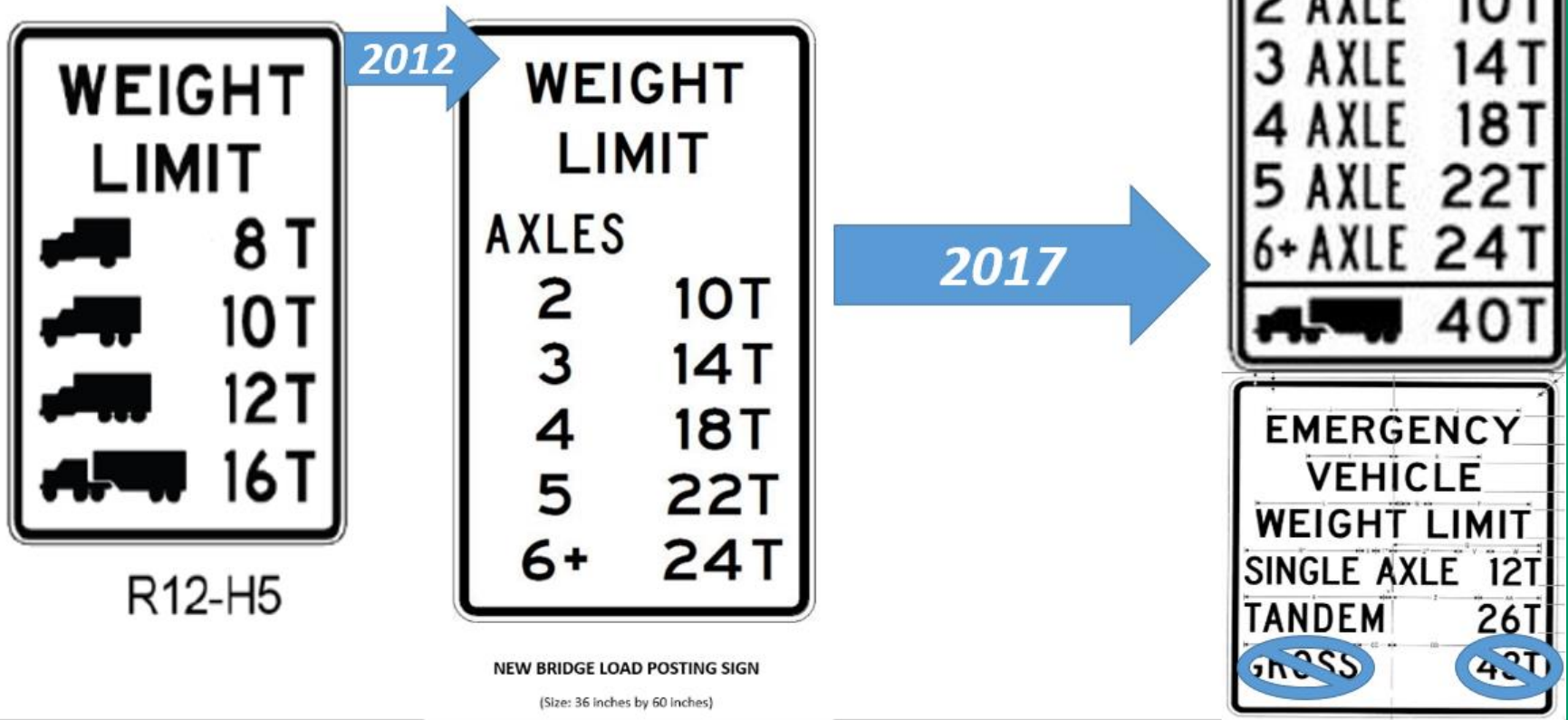
R12-2



R12-3

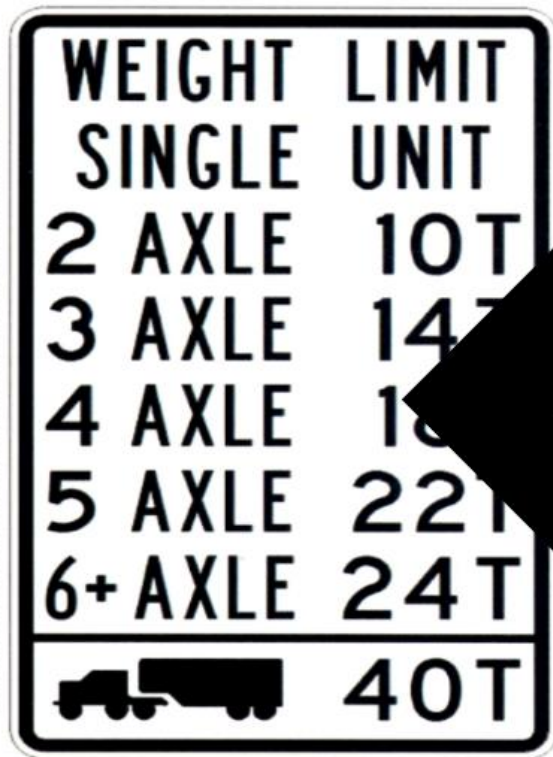
Posting Signs

Recent Evolution R12-5



Posting Signs

New Signs, May 2017



**EITHER OR
NOT BOTH AT THE
SAME BRIDGE**



FRP Wraps

- ④ BDM added guidance/requirements for designing/rehabilitating bridges in Ohio for seismic events
- ④ Ductility in columns
 - ④ New bridges – spirals
 - ④ Existing bridges – FRP wrap

FRP Wraps

- In July the 2004 BDM update - design guidance has been provided on designs for FRP wrap
 - Created a proposal note for composite wrap systems
 - Review the Designer notes for plan information
 - Systems must be evaluated by International Code Council Evaluation Service

MASH Implementation

- ① Manual for Assessing Safety Hardware
- ① Replaced NCHRP 350
 - ① Manuals can be updated
 - ① NCHRP reports can not be updated
- ① Dec. 21, 2015 AASHTO/FHWA implementation plan
- ① Dates established for implementation of MASH compliant hardware.

MASH Implementation

- ⦿ Bridges – letting date after Dec. 31, 2019
bridge railing must be MASH compliant
 - ⦿ other types of hardware have different dates
- ⦿ ODOT and FHWA are working together to understand roles
 - ⦿ FHWA eligibility letters
 - ⦿ ODOT self certifications

MASH Implementation

How does this effect you?

- 🕒 Some standards will change
- 🕒 ODOT/IDOT teaming up to develop a new TL4 tubular railing system
- 🕒 Working on a plan for all of our bridge railing needs – stay tuned

Training

- ODOT is offering a make-up Bridge Inspection refresher training course on Dec. 4, 2017 at ODOT Central Office.
- Sign up through LTAP
- Available to sign up this fall.

Thank you !!!

Any Questions??

