

# Combination Bridge Rail - Concrete & Metal

Table 1: Number of States Interested in Using				
	Test Level			
	TL-2	TL-3	TL-4	TL-5
Traffic Only With Curb	0 States	4	3	0
Traffic Only With Parapet	1	2	5	1
Traffic and Pedestrian with Sidewalk	1	3	9	2
Traffic and Pedestrian without Sidewalk	0	3	5	1

*Table 1 shows information gathered in the past regarding the interest that partner states had in using bridge rails of a given shape and test level.*

Table 2: NCHRP 20-07 Global Equivalency				
NCHRP Report 350 Rail System Type	MASH Test Level			
	TL-2	TL-3	TL-4	TL-5
Metal Beam-and-Post on Curb	TL-2 TL-3 TL-4			TL-5
Metal Beam-and-Post on Parapet*	TL-2	TL-3 TL-4		TL-5

*Table 2 shows the NCHRP 20-07 Task 395 recommendation regarding global equivalency of systems previously tested and passed NCHRP 350 .*

## Discussion Points

Understand the information presented in Table 1

Understand the information presented in Table 2

Understand the information presented in Table 3 (following pages)

- 1) DISCUSS plan of attack. Considering the information in the tables,
  - o Does the group want to consider the category (enough work already been done/enough “tools already in the toolbox”)?
  - o If included, does the group want to limit the scope of discussion to certain test levels or configurations?
  - o OR, just “send all systems you are interested in”
- 2) Other GROUP DISCUSSION ITEMS?

Table 3 lists known MASH compliant systems

**Table 3: MASH Compliant Systems**

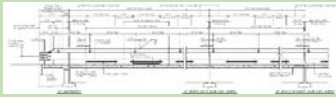
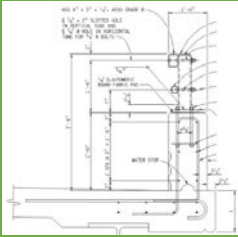

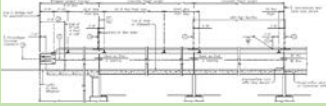



**DARK GREEN:**  
Documentation complete. The Documentation is NCHRP report or report from an accredited crash

**LIGHT GREEN:** TTI feels the system is MASH compliant. The documentation would be a professional opinion (not yet completed)

**LIGHT YELLOW:** Systems are planned for full-scale crash testing


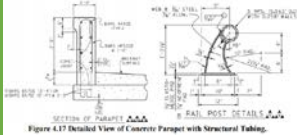
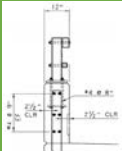
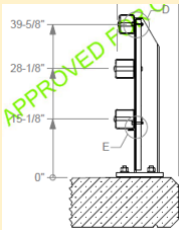

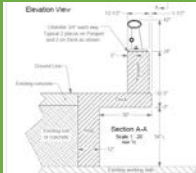
	Test Level			
	TL-2	TL-3	TL-4 <sup>A)</sup>	TL-5 <sup>B)</sup>
Traffic Only With Curb		<p><b>32.5 in Alaska Multi State Bridge Rail</b> Document: <b>NCHRP 20-07, Task 395</b></p>	<p><b>MASSDOT S3-MTL4 Curb-Mounted Full Suite</b></p>	
		<p><b>Similar Less Critical Rails:</b></p>		
		<p><b>36 in. TxDOT type T1P (Picket Rail)</b> Approach: Full Suite Document: <b>FHWA/TX-12/9-1002-12-2</b></p>		
		<p><b>33 in. TxDOT type T1F</b> Document: <b>408019-1</b></p>		
		<p><b>36 in. TxDOT type T131RC</b> Document: <b>FHWA/TX-12/9-1002-12-1</b></p>		
		<p><b>32 in. TxDOT T1W Rail</b></p>		

A) 36 in. min. height based on *Determination of Minimum Height and Lateral Design Load for MASH Test Level 4 Bridge Rails.* (Report No. 9-1002-5).  
 B) 42 in. minimum height as requirement that remains from NCHRP Report 350.

Traffic Only With Parapet		42 in. TxDOT C223 	42 in. Aesthetic Parapet Tube B-25-J (Michigan) Document: <b>NCHRP 20-07, Task 395</b> 	50 in. PennDOT PA Bridge Rail Full Suite 
		42 in. TxDOT C221 	S-352 Galvanized Steel Tubing Concrete Combination Rail (VT) Document: <b>NCHRP 20-07, Task 395</b>	
			39 in. Lake Pontchartrain Causeway Single Rail Approach: Full Suite Document: <b>No. 690900-GEC1-3</b> 	
			46 in. Lake Pontchartrain Causeway Dual Rail Approach: Full Suite Document: <b>No. 690900-GEC7-9</b> 	
			42 in. TxDOT Type T402 (same as C402) Full Suite Document: <b>Report Pending</b> 	

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B) 42 in. minimum height as requirement that remains from NCHRP Report 350.

<p>Traffic and Pedestrian with Sidewalk</p>	<p>43in. Caltrans Type 732SW Document: <a href="#">FHWA Eligibility Letter B-259</a></p> 	<p>45.25 in. Concrete Parapet with Structural Tubing (TN) Document: <a href="#">NCHRP 20-07, Task 395</a></p>  <p>Figure 4.17 Detailed View of Concrete Parapet with Structural Tubing.</p>	<p>42 in. S-352 Series, Bridge Railing, Galvanized Steel Tubing/ Concrete Combination Document: <a href="#">NCHRP 20-07, Task 395</a></p>  <p>Similar Less Critical Rails:</p>	
			<p>PS-1 (IN) Bridge Railing, Aesthetic Parapet Tube (MI) Bridge Sidewalk Railing with Concrete Barrier (OH) Document: <a href="#">NCHRP 20-07, Task 395</a></p>	
			<p>MASSDOT S3-MTL4 Sidewalk-Mounted Full Suite</p>  <p>39-5/8" 28-1/8" 1-1/8" 0"</p>	
<p>Traffic and Pedestrian without Sidewalk</p>		<p>42 in. Florida Combination (SS+Bullet AI Rail) Only Test 4-11 for now</p>	<p>42 in. TxDOT Type C2P (Picket Rail) Approach: Full Suite Document: <a href="#">FHWA/TX-17/9-1002-15-2</a></p> 	
			<p>42 in. TxDOT C402 (also T402) Full Suite Document: Report Pending</p>  <p>Elevation View Section A-A</p>	

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B) 42 in. minimum height as requirement that remains from NCHRP Report 350.

