

Bridge Rail - Concrete Only

Table 1: Number of States Interested in Using

| | Test Level | | | |
|---------------------|-----------------|----------|-----------|----------|
| | TL-2 | TL-3 | TL-4 | TL-5 |
| F Shape | 0 States | 7 | 7 | 5 |
| New Jersey | 0 | 3 | 1 | 0 |
| Single Slope | 0 | 1 | 8 | 4 |
| Vertical | 2 | 3 | 10 | 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 Test Equivalency

| NCHRP Report 350 Rail System Type | MASH Test Level | | | |
|-----------------------------------|-----------------|----------------------|------|-------------|
| | TL-2 | TL-3 | TL-4 | TL-5 |
| F-Shape | TL-2 | TL-3 TL-4 | | TL-5 |
| New Jersey | TL-2 | TL-3 TL-4 | | TL-5 |
| Single Slope | TL-2 | TL-3 TL-4 | | TL-5 |
| Vertical | 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 .

[Link to report](#)

Table 3 lists known MASH compliant systems for a given shape and test level

| Table 3: MASH Compliant Systems | | Test Level | | | |
|---------------------------------|--------------|------------|---|--|--|
| | | TL-2 | TL-3 ^{A)} | TL-4 ^{B)} | TL-5 ^{C)} |
| F Shape | | 32 in. | 32 in. Document: NCHRP 20-07, Task 395 | 36 in. Min Height Document: NCHRP 20-07, Task 395 | 42 in. Min Height Document: NCHRP 20-07, Task 395 |
| New Jersey | | 32 in. | 32 in. Approach: Full Suite Document: (TRP-03-177-06; NCHRP Project 22-14(3)) | 36 in. Min Height Document: NCHRP 20-07, Task 395 | 42 in. Min Height |
| Single Slope | 9.1° | 32 in. | 32 in. Document: NCHRP 20-07, Task 395 | 36 in. Min Height Document: NCHRP 20-07, Task 395 | 42 in. Min Height Document: NCHRP 20-07, Task 395 |
| | 10.8° | 32 in. | 32 in. Document: NCHRP 20-07, Task 395 | 36 in. Min Height Document: NCHRP 20-07, Task 395 | 42 in. Min Height |
| Vertical | | 32 in. | 32 in. | 36 in. Min Height Document: NCHRP 20-07, Task 395 | 42 in. Min Height Document: NCHRP 20-07, Task 395 |

Unless otherwise indicated the Due Diligence approach was used

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

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

A) 29 in. minimum height based on finite element simulations (NCHRP 20-07).
 B) 36 in. minimum height based on *Determination of Minimum Height and Lateral Design Load for MASH Test Level 4 Bridge Rails*. (Report No. 9-1002-5).
 C) 42 in. minimum height as requirement that remains from NCHRP Report 350.

As part of NCHRP Project 20-07, Task 395, researchers conducted an effort to evaluate global equivalency between NCHRP Report 350 and MASH test levels. The global equivalency was determined through exploration of three key criteria: stability, strength, and geometrics. (Table 3.11 of NCHRP Project 20-07, Task 395)

Discussion Points

Understand the information presented in Table 1

Understand the information presented in Table 2

Understand the information presented in Table 3
(including approach and documentation)

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