



Montana Department of Transportation
PO Box 201001
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Memorandum

To: Distribution

From: Paul Ferry, P.E.
Highways Engineer

Date: October 4, 2011

Subject: W-beam Guardrail Height

Due to the results of recent testing, the mounting height to the top of w-beam guardrail has been changed to 31", with a $1" \pm$ tolerance for construction for new installations. This same testing also demonstrated that rail with a top-of-rail height less than $27\frac{3}{4}"$ did not meet NHCRP and MASH requirements.

After reviewing the changes required to implement a 31" top of rail height and discussing them with Maintenance, we have decided to utilize a 29" top of rail height. This decision was based on the fact that we could continue to use all of our existing hardware. A 31" top of rail height would have required different terminal sections and different size blockouts or a new post system without blockouts.

While this height is not preferred, it is allowed by FHWA. It is also a sufficient distance above the minimum $27\frac{3}{4}"$ to provide a factor of safety for impacts, as well as a margin of error for installation.

The affected Detailed Drawings have been modified and released as the December 2011 supplement. The Detail Drawings are available at the following link:

http://www.mdt.mt.gov/business/contracting/detailed_drawings.shtml.

In addition to the new rail height requirements, the following items should be noted:

- The same posts can be used. The testing has shown that these posts will meet NHCRP and MASH requirements even with the reduced embedment length.
- For future overlays we recommend adjusting the heights of the rail if the placement of an overlay reduces the existing rail height to less than $27\frac{3}{4}"$. However, it is not required as noted in the Guidance for Nomination and Development of Pavement Projects.
- Adjusting the heights of the rail will be required on overlay projects if the placement of an overlay reduces the existing top of rail height rail height to less than $26\frac{1}{8}"$ (bolt hole height of 20").

The new rail height will be used for all projects submitted to the checkers after December 1, 2011.

If you have questions concerning this, please contact me at 444-6244.

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