

DRAFT GUARDRAIL COMMENTS AND RECOMMENDATIONS

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The following is a preliminary listing of suggestions and recommendations regarding guardrails and guardrail end treatments (GETs). Feel free to review and provide me with your feedback if you like.

1. Watch [Steve Eimers' \("The Guardrail Guy"\) YouTube videos](#) on guardrail issues. His point of view and videos are illuminating when it comes to guardrail and especially GETs. He can help teach you how to spot guardrail issues.
2. Obtain a copy of both the American Traffic Safety Services Association's (ATSSA's) [2022 W-Beam Guardrail Identification & Repair Guidelines](#) and the Federal Highway Administration's (FHWA's) [2008 W-Beam Guardrail Repair – A Guide for Highway and Street Maintenance Personnel](#). Make sure all who are responsible for the installation, maintenance, and repair of guardrails follow these guides and applicable manufacturer instructions and recommendations. Also, check out [the FHWA webpages on guardrails and GETs](#). These are great documents to use in conjunction with the American Association of State Highway and Transportation Officials' (AASHTO's) [Roadside Design Guide](#) and [Manual for Assessing Safety Hardware \(MASH\)](#).
3. Know your guardrail and GET makers and products, such as Valtir (formerly Trinity Highway Products), Road Systems, Inc. (RSI), Lindsay Corporation, Universal Industrial Sales, Inc. (USI), Highway Safety, and Gregory Industries. If in doubt, check their websites and/or contact them.
4. Pay attention to damage and have a repair plan in place, either with agency staff or with a contractor. Make sure those doing the repair know what they are doing and why. Make sure they also know how to spot and repair guardrail issues, especially those related to GETs.
5. Develop and maintain a guardrail and attenuator In-Service Performance Evaluation (ISPE) program like the pilot program FHWA is doing for the entire state of Arizona. Note that ISPEs have been a longstanding recommendation. Perhaps an arrangement funded by Arizona Department of Transportation (ADOT) research can be developed to include the state's universities in this effort.
6. Be aware of what standard an agency can and cannot operate and maintain. Some tend to build the guardrail and forget about it until it is damaged, at which point it might be maintained. Some agencies have the mindset that guardrail does not need to be "operated." However, agencies need to consider if the installation is reasonable in today's world or if the installation is functionally obsolete. In some instances, there may be little to no response to damage.
7. Know what standard is applicable. Not all applications need the highest MASH test level. This can apply to urban and rural environments on slower-speed roadways.
8. Recognize the reluctance to change anything related to guardrail and end treatments. This poses a danger in that some guardrails and end treatments become more of a hazard than the hazard they are protecting against.

9. Remember the three categories of functionality that can be used to describe the extent of damage per the AASHTO and FHWA guardrail guides:
 - The guardrail is no longer reasonably functional.
 - The guardrail should function adequately under a majority of impacts.
 - Damage should not affect the guardrail’s ability to perform.

Not adhering to these guidelines poses an increased risk to both road users and the agency.

10. MASH has been around since 2009, and the latest update was issued in 2016. It is time to move on from NCHRP 350.
11. Remember that W-beam is a tension system that needs to be installed, operated, and maintained in a manner consistent with the way it was crash-tested.
12. Know what makes guardrail functionally obsolete. Height is the primary factor—anything lower than 24 inches is undesirable. Steel blocks are functionally obsolete and need to be replaced with new blocks. Blocks that are only 6 inches in depth are functionally obsolete. Rail washers are functionally obsolete.
13. Repair guardrail in place if damage is limited to a short section. If the damage is significant, the segment and the end treatments should be upgraded and replaced.
14. Proper grading in and around guardrail is important. Also, vegetation control is needed to prevent bushes and trees from growing around and near the rail. Items that could cause a sagging hazard and/or obstructions should not be placed in, around, or in front of guardrails.

