



Memorandum

Subject: INFORMATION: In-service Performance Evaluation and Continuous
Monitoring of Roadside Safety Features

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From: *for* 
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Director, Office of Safety Design

Reply to
Attn. of: HSA-10

To: Safety Field

Ideally, all highway agencies should know precisely what has been incorporated into its roadway/roadside infrastructure and be able to monitor the performance of individual components of its highway system. Asset management has become a primary means of accomplishing this goal in many states. However, there remains one area where in-service evaluation or performance monitoring seems to be minimal at best, and that is the area of roadside safety features.

As some of you may recall, when the FHWA began formal acknowledgement of successfully crash tested safety appurtenances in the late 1980's, we first accepted a device as an *experimental* feature, and later upgraded it to *operational* status when enough crash data had been gathered to show that it was, in fact, performing as desired under varied field conditions. Several State transportation agencies were reluctant, however, to install a safety device that was labeled experimental and many believed the evaluation process itself to be both time-consuming and expensive, so our two-phase acceptance procedure was dropped. Unfortunately, formal in-service evaluations of safety devices were dropped as well by most States.

Because the crash tests by which safety features are deemed acceptable for use on the NHS are conducted under ideal conditions, are limited in number, and use only two vehicle types, this testing may not reveal longer term operational, maintenance, or repair problems that do not become apparent under short-term certification testing. Actual field experience must be monitored to assure that a safety device is working as intended. In fact, Chapter 7 of the NCHRP Report 350 outlines a simplified procedure for conducting in-service performance evaluations on devices deemed crashworthy through standard testing procedures. The NCHRP Report 490, "In-Service Performance of Traffic Barriers", published in 2003, summarized the results of field evaluations of barrier terminals conducted in three states and provided a model methodology that can be used by hardware manufacturers and transportation agencies to monitor the performance of their hardware.



Several States routinely conduct in-depth evaluations at locations where fatal or otherwise severe crashes have occurred in order to assess potential liability firsthand, but also to determine if roadway or roadside design contributed in any way to the severity of the crash. This specific activity should be conducted by those in the highway agency who are responsible for the design and maintenance of the roadside safety hardware and may be reported as part of each State's HSIP as it will provide valuable input into the report required under 23 U.S.C. 148 (g).

I am enclosing an evaluation study recently completed by a manufacturer on a unique crash cushion that had been developed, tested, and accepted for use on the NHS. In this case, our formal acceptance letter (CC-85) requested that an evaluation be conducted since the product was different from others on the market. One can readily see that the report is very straightforward, primarily requiring notification when a crash occurs and follow-up on site to obtain as much information on the consequences of the crash – to the vehicle involved, its occupants, and the device itself.

Both types of assessments should be an ongoing effort at all levels and for all roadside safety features to verify expected impact performance and, as suggested above, can be used as input to assess the effectiveness of the roadway departure elements of each State's overall HSIP.

Attachment