



Texas A&M Transportation Institute  
3135 TAMU  
College Station, TX 77843-3135

979-845-1713  
Fax: 979-845-9356  
<http://tti.tamu.edu>

September 10, 2015

Commissioner Charles Kilpatrick  
Department of Transportation  
Commonwealth of Virginia  
1401 E. Broad Street  
Richmond, VA 23219

Dear Commissioner Kilpatrick:

It is our understanding that the Virginia Department of Transportation (VDOT) and Commonwealth of Virginia are preparing to conduct additional crash tests on the ET Plus® guardrail end-terminal system (ET Plus). As the designers of the original technology employed in that system, we believe four of the six tests are duplicative and not needed, and the proposed approach for conducting all six tests is unsound and lacks transparency.

The secrecy surrounding Virginia's planned ET Plus testing stands in stark contrast to the transparency of the Federal Highway Administration (FHWA) mandated testing conducted by Southwest Research Institute in San Antonio last December and January. As you know, VDOT personnel, along with representatives of other state departments of transportation (DOTs) and an independent expert from Virginia Tech University employed by FHWA, were given ample opportunity to review and suggest changes to the proposed testing plan, observe the tests, and inspect the vehicle and guardrail following those tests. FHWA, as part of its review, also asked the states for specific performance feedback related to the ET Plus. VDOT's response was that "*end terminals are performing as expected.*"

The ET Plus is the most tested product of its kind. It has repeatedly passed National Cooperative Highway Research Program (NCHRP) Report 350 test criteria. It is not clear to us why VDOT feels additional NCHRP Report 350 testing should be conducted. We are confident, based on the many tests run to date, that the ET Plus will perform as designed in additional NCHRP Report 350 tests if the tests are properly conducted. Because there is no transparency regarding the VDOT test plan, no interested observer can be assured that the test plan meets applicable criteria.

The Texas A&M Transportation Institute (TTI) is particularly concerned about your decision to run non-standard crash tests on the ET Plus. Your reason for conducting these non-standard tests is unclear. Standards exist for a reason. Without them, there is no objective mechanism for evaluating the design, effectiveness and performance of any roadside safety device. The NCHRP Report 350 testing standards are the result of countless hours of development and review by engineers and other highway safety professionals.

Arbitrarily abandoning established testing criteria will have a chilling effect on future development and enhancement of highway safety devices. By pursuing this approach, VDOT might also call into question all federal guidelines on how these devices are approved for use on our highway system. If each state decides to develop its own protocols, the development, testing and availability of these important safety products is likely to decrease significantly.

Finally, we are also very concerned by the decision to test only the ET Plus to the non-standard criteria. None of the highway safety devices on the roadways that meet the NCHRP Report 350 criteria have been tested to these non-standard criteria, and the ET Plus is more tested than any other guardrail end-terminal system. Requiring the ET Plus to pass non-standard crash tests is fundamentally unfair because it will apply new testing criteria that did not exist when the ET Plus was designed and accepted by the FHWA under the NCHRP Report 350 criteria. If VDOT is interested in safety and believes conducting non-standard crash tests somehow enhances safety, it only seems logical that all devices on your roadways need to be tested to the same criteria.

In our view, the testing being pursued by VDOT either duplicates tests already conducted or tests devices to non-standard criteria. It is being done with virtually no transparency, which will greatly reduce the value and credibility of any tests that are conducted. It is being done selectively on only one product. And finally, for some reason, VDOT has chosen not even to notify TTI of this proposed testing.

Let me be clear: There has never been any engineering uncertainty among the designers and developers of the ET Plus regarding the impact performance of this device. Nor is there any scientific evidence that the ET Plus is not performing as designed. Further testing of the most-tested roadway safety device of its type is redundant. Changing the standards under which such tests are conducted is a matter of utmost concern. And subjecting one device to a different set of standards than all others is altogether indefensible.

I am happy to discuss this further if you so desire.

Very truly yours,



Dennis L. Christiansen, P.E.  
Agency Director

cc: Aubrey Layne, Jr., Secretary of Transportation, Commonwealth of Virginia  
Greg Nadeau, Administrator, Federal Highway Administration  
Bud Wright, Executive Director, American Association of State Highway and  
Transportation Officials (AASHTO)