

## **TTI Has No Confidence in the Crash Tests Being Performed by Virginia**

The circumstances surrounding the series of crash tests of the ET Plus® guardrail end-terminal system (ET Plus) by the Virginia Department of Transportation (VDOT) and Commonwealth of Virginia call into question the credibility of those tests and reinforce suspicions about the real motive for the testing.

The Texas A&M Transportation Institute (TTI) was provided a limited opportunity to inspect the test installation and crash test vehicle for the first test on Sept. 17. As indicated on the attached table, the test conditions did not meet National Cooperative Highway Research Program (NCHRP) Report 350 test criteria. As a result, TTI has no confidence that the five remaining tests, being conducted over the next three weeks at a private testing facility in California, will be run according to NCHRP Report 350 criteria, thus making the value of any results questionable at best.

As a research organization, TTI is well aware of the importance of openness and transparency for research findings to be accepted as credible. Consequently, TTI is astounded at the testing approach being pursued by VDOT. The lack of NCHRP Report 350 standard test plans and protocols undermines any confidence in the credibility of the tests.

Just last week, after months of reviewing real-world crash data from around the country, a joint task force of federal and state transportation safety experts found no reason for further testing of the ET Plus or other NCHRP Report 350-compliant extruding w-beam guardrail end-terminal systems. The task force was comprised of individuals from the Federal Highway Administration (FHWA), various state departments of transportation, the American Association of State Highway and Transportation Officials (AASHTO), and three independent experts. FHWA called the task force's efforts "the most thorough evaluation ever conducted of this particular roadside safety hardware."

The current testing being pursued by VDOT either duplicates tests already conducted or involves non-standard criteria that are outside the design conditions used to develop and evaluate the ET Plus, as well as other guardrail end-terminal systems of its kind. Standards exist for a reason. Without them, there is no objective mechanism for evaluating the design, effectiveness and performance of any roadside safety device. In addition, the testing is being done selectively on only one product—the ET Plus. If VDOT is truly interested in safety and believes conducting non-standard crash tests somehow enhances safety, all devices on Virginia roadways should be tested to the same criteria.

The circumstances surrounding VDOT's tests of the ET Plus stand in stark contrast to the transparency of the Federal Highway Administration (FHWA)-requested ET Plus tests conducted by Southwest Research Institute in San Antonio last December and January. (*See attached table*

*for a comparison.*) VDOT personnel, along with representatives of other state departments of transportation 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 thoroughly inspect the vehicle and guardrail prior to and 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 has undergone the most rigorous testing ever applied to any guardrail end-terminal system and has an unbroken chain of eligibility for federal-aid reimbursement from the FHWA. It has repeatedly passed NCHRP Report 350 test criteria. This, plus 15 years of roadside experience, vindicate and reinforce our confidence in the ET Plus.

**For more information:**

FHWA Task Force Report: <http://www.fhwa.dot.gov/guardrailsafety/isptf.cfm>

TTI ET Guardrail Resources: <http://tti.tamu.edu/etguardrailresources/>

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## Comparison of Crash Testing Protocols Followed

Test Action	FHWA/SwRI Dec. 2015 and Jan. 2015 Tests	VDOT/KARCO Sept. 2015 Tests
Documentation of chain of custody for test articles.	✓	No
Documentation of condition of test articles.	✓	No
Verification that test articles are Trinity-manufactured parts that have not been altered or compromised.	✓	No
Trinity installation drawings provided.	✓	No
Specification and details of entire test installation, including ET Plus terminal system, guardrail section, and downstream terminal.	✓	No
Clear specification of NCHRP Report 350 standard soil.	✓	No
Clear specification of post/soil installation procedure to achieve NCHRP Report 350 soil compaction requirements.	✓	No
Ability to observe the installation of the test articles.	✓	No
Ability to inspect the installation before and after each test to verify and document as-built/as-tested dimensions.	✓	Unknown
Clear specification of the type of test vehicles used.	✓	No
Knowledge of the condition of the test vehicles.	✓	No
Ability to comprehensively inspect the test vehicles before and after each test.	✓	Unknown
Test plan clearly denoting tests being conducted and associated impact conditions.	✓	No
Schedule of testing dates/times provided for entire test series.	✓	No
Tests performed in accordance with NCHRP Report 350 design procedures.	✓	No
Same evaluation criteria used for all guardrail terminals installed on the national highway system.	✓	No

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