

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION**

UNITED STATES OF AMERICA EX REL.	§	
JOSHUA HARMAN,	§	
	§	
Plaintiff,	§	
	§	
v.	§	CIVIL ACTION NO. 2:12-CV-0089
	§	
TRINITY INDUSTRIES, INC. AND	§	
TRINITY HIGHWAY PRODUCTS, LLC,	§	
	§	
Defendants.	§	

**REPLY IN SUPPORT OF DEFENDANTS’ REQUEST FOR JUDICIAL NOTICE OF  
FHWA’S DETERMINATION ON FULL SCALE CRASH TESTING OF THE ET PLUS  
GUARDRAIL TERMINAL**

Defendants, Trinity Industries, Inc. and Trinity Highway Products, LLC (collectively, “Trinity”) hereby file this Reply in Support of Trinity’s Request for Judicial Notice of FHWA’s Determination on Full Scale Crash Testing of the ET Plus Guardrail Terminal, and would show the Court as follows:

**INTRODUCTION**

After reviewing and analyzing the results of eight additional crash tests recently conducted on the ET Plus (the “Test Results”), the Federal Highway Administration (“FHWA”)—together with Dr. H. Clay Gabler of Virginia Tech, an independent expert contracted by the FHWA, and the Southwest Research Institute (“SwRI”), an independent, accredited, ISO-certified, and FHWA-qualified testing agency—has determined that the ET Plus passed all tests and meets the NCHRP Report 350 testing criteria. *See* Test Results at Dkt. Nos. 677-03 (27 ¾” guardrail height), 677-08 (31” guardrail height). The ET Plus is now the most tested highway product of its kind under NCHRP Report 350, and has enjoyed continuous federal-aid eligibility from its initial acceptance by the FHWA through today. Further, the Test

Results are merely the latest in a series of re-confirmations by the real party in interest – the FHWA – that the ET Plus with 4 inch guide channels satisfies federal crash testing criteria. Judicial notice is proper for this reason alone. *See* FED. R. EVID. 201.

As Trinity has previously explained, the Test Results—though fully supportive of the fact that the ET Plus has at all relevant times been crashworthy and federally approved—are not necessary to determine that Harman did not and could not prove a valid claim under the False Claims Act. In fact, the FHWA’s past federal approval and eligibility determinations (made with full knowledge of Harman’s allegations) are dispositive of Harman’s claims.

Although he now argues otherwise, it is Harman who has put the Test Results at issue in this case. But when they conclusively cut against him, Harman seeks to run from their results. Throughout this case, Harman has made clear that he is basing his FCA theory of liability (incorrectly) on his own opinions about the safety of the ET Plus, and his disagreements with the FHWA’s determinations regarding the continuous eligibility of the ET Plus. He has expressly and repeatedly raised the FHWA’s post-trial request for new crash testing as evidence that the FHWA has somehow disavowed its prior eligibility determinations. Now that the Test Results go against him, however, Harman takes inconsistent and illogical positions, arguing simultaneously that the Test Results are irrelevant to this case and that they confirm the positions he advocated at trial.

In response to the successful Test Results, Harman also continues his attack on the integrity and professionalism of the FHWA, its independent expert, and even the independent testing agency (where Harman’s consulting expert has conducted crash testing on his own products), who have each determined that the Test Results are in full compliance with NCHRP Report 350 criteria. Far from discrediting the Test Results, Harman’s attacks reveal his true

motives and the flaw in his claims in this FCA case. In truth, Harman has no interest in representing the party he alleged was defrauded and damaged – the FHWA. And his FCA claims have been consistently rejected by the FHWA, the “real party in interest” in this action.

The Court should reject Harman’s upside-down approach to this case and grant judicial notice of the FHWA’s determination on the full scale crash testing. Moreover, the Test Results squarely address the question Harman poses in his Response of what the FHWA is “to do about more than 200,000 ET-Plus terminals already on the roadways.” *See* Resp. at 4, Dkt. No. 687. The FHWA has answered this question repeatedly—starting in 2005, and again in 2012, 2013, before and after trial in 2014, and yet again in 2015, including in a conference held to announce the latest Test Results in March 2015. And each time, the FHWA has unequivocally concluded that there is nothing that needs to be “done” about the ET Plus terminals on the roadways—the ET Plus is and has at all relevant times been compliant with federal crash testing criteria. Accordingly, and at a minimum, FHWA’s determinations are relevant for the purpose of confirming (once more) that the Government has received the full benefit of its bargain—a product that is NCHRP Report 350 compliant—and has suffered no harm as a result of the conduct Harman baselessly alleges.

## **ARGUMENT**

### **A. The Test Results—issued by the real party in interest in this action—reject Harman’s allegations concerning ET Plus eligibility.**

Once again, the federal agency that was supposedly defrauded in this action has determined that Harman’s claims about the ET Plus and its eligibility for federal funding are unfounded. Once again, Harman’s response is to attack and vilify the very party he claims to represent. *Cf. United States ex rel. Eisenstein v. City of New York*, 556 U.S. 928, 930 (2009). As he has done in previous filings, Harman actually claims that the FHWA engaged in

“questionable behavior,” that the FHWA failed to “apply the [correct] standards and guidelines” and instead based its conclusions “upon guidelines created post-trial and never before applied,” that the FHWA acted “in defiance of NCHRP Report 350” by failing to order shallow angle testing of the ET Plus, and that “[i]n order to pass the test in 2015, the FHWA had to endorse a measurement protocol that did not comply with NCHRP Report, ignore the 2005 standard for intrusion into a passenger compartment, and contrive a new, much more lenient standard never before used by the FHWA or any crash testing agency.” Resp. at 4-6, Dkt. No. 687.

The very fact that the Relator in this FCA case must resort to attacking the federal government and its repeated determinations that go against him speaks volumes about the invalidity of Harman’s claims. Once again, to accept Harman’s allegations, one must believe that the entire process that generated the Test Results was an elaborate ruse to mislead the public, including the collection by the FHWA of the ET Plus test articles from existing inventory at the California Department of Transportation; the conduct and analysis of the crash tests by an independent testing agency and an independent expert retained by the FHWA; the FHWA’s oversight of each crash test and set-up and the agency’s analysis of the results; participation by engineers from several state departments of transportation who were given an opportunity to review the test set-up, witness the crash testing, and conduct post-test evaluations of the tested devices; access to the crash testing by representatives of the media; post-testing media interviews given by representatives of the FHWA and the American Association of State Highway and Transportation Officials; and the ultimate conclusion of the FHWA, SwRI, and Dr. Gabler that the Test Results satisfied NCHRP Report 350. *See* Dkt. No. 677-02 (describing the steps taken by the FHWA “to ensure the integrity and transparency of the ET-Plus retesting”). To follow Harman’s logic, one must further believe that the parties to this supposed conspiracy include not

only the FHWA, but also an independent and accredited testing facility (used by Harman's consulting expert to perform his own crash testing) and an independent engineering expert (who is a Professor and Department Chair of crash and biomedical engineering mechanics at Virginia Tech). According to Harman, all of these engineers and highway safety professionals have somehow colluded together for the sole purpose of thwarting his crusade against the ET Plus. Once again, FHWA's complete transparency demonstrates that Harman's supposed conspiracy is beyond ludicrous.

Harman may disagree, but the facts remain: The FHWA and independent highway safety experts have determined that the ET Plus has passed all crash tests requested by the federal government; and the ET-Plus has at all times, and continues to be, NCHRP Report 350 compliant and eligible for federal-aid reimbursement.

**B. The Test Results are relevant to Harman's theory of the case.**

Under Harman's theory of this FCA case (which Trinity continues to maintain is fundamentally flawed), the Test Results are relevant. Harman's attempt to argue otherwise is patently contradicted by his own prior arguments. First, Harman has argued that the FHWA's post-trial request for new crash testing is evidence that the FHWA has somehow disavowed its prior eligibility determinations for the ET Plus. For example, Harman stated in post-trial briefing, with no evidence to support the assertion, that after presentation of the evidence at trial the FHWA obtained "a clearer picture of all the facts," and that as a result the FHWA "declared its intention to fully review the status of the ET-Plus," including by subjecting the ET Plus to a series of additional crash tests. *See, e.g.,* Pl.'s Opp'n to Defs.' Renewed Rule 50(b) Mot. for J. as a Matter of Law at 2, Dkt. No. 609. Likewise, Harman has argued that the FHWA's request for additional testing "confirms that its earlier letters concerning ET-Plus eligibility were in no

way final or authoritative decisions.” *See id.* at 26-27. The FHWA-approved Test Results, including the agency’s repeated conclusions both before and after trial that the ET Plus satisfies, as it always has, the NCHRP Report 350 criteria, are relevant to Harman’s allegations and put an end to Harman’s attacks on the FHWA’s prior eligibility rulings.

In addition, Harman expressly argues—in a bolded title heading in his Response—that “The Results of the 8<sup>th</sup> Crash Test Support Plaintiff’s Position **Taken During Trial** That Trinity in 2005 Altered the ET-Plus in a Way that Makes it Dangerous.” *See Resp.* at 11, Dkt. No. 687 (emphasis added). Thus, Harman’s own argument makes expressly clear that the Test Results are relevant to his incongruous theory of the case and the way he tried it before the jury.<sup>1</sup>

Harman’s relevancy arguments are so inconsistent and ever shifting that he cannot keep them straight. On one hand, Harman parrots the point—raised by Trinity—that the post-trial crash testing is relevant only to the prospective eligibility of the ET Plus, and not to any fraud that Trinity allegedly “committed. . . starting in 2005 when it [allegedly] fraudulently failed to disclose changes to the ET-Plus.” *See Resp.* at 3-4, Dkt. No. 687. Elsewhere, however, Harman argues that: (1) the mere fact of the post-trial testing somehow corroborates “the fact that [the FHWA] first learned of certain material changes to the ET-Plus only because of the evidence Plaintiff presented at trial,” and (2) “The Results of the 8<sup>th</sup> Crash Test Support Plaintiff’s Position Taken During Trial that Trinity in 2005 Altered the ET-Plus in a Way that Makes it Dangerous.” *See id.* at 2, 11-12; *see also* Dkt. No. 609 at 11. While Harman may not be able to keep his arguments straight, the FHWA-approved Test Results are unequivocally clear. They reject any claim by Harman that any alleged changes to the ET Plus rendered the device

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<sup>1</sup> What Harman fails to admit is that the banner argument made by his counsel - in opening, during the case, and in final argument - was that the self-appointed “critical test” involving a pickup truck was actually among the eight tests that he now criticizes. And, the ET Plus passed this “critical test,” performing well within the NCHRP Report 350 criteria.

uncrashworthy, unsafe, or non-compliant with NCHRP Report 350.

**C. Judicial notice is proper with respect to the government's determinations in the Test Results.**

It is undisputed the FHWA, the real party in interest, has reached certain conclusions in its publicly released Test Results. Even Harman does not dispute, nor could he, the fact that the FHWA has published the Test Results, the fact that the FHWA has reached certain determinations regarding the Test Results, and the fact that the FHWA has determined the ET Plus passed all crash tests and remains, as it always has been, NCHRP Report 350 compliant. Judicial notice is therefore proper. *See* FED. R. EVID. 201(b).

In addition, the Fifth Circuit authorities cited in Harman's Response do not weigh against the taking of judicial notice here. Harman incorrectly claims that these cases prohibit judicial notice after the close of discovery on due process grounds. *See* Resp. at 4-5, Dkt. No. 687. But neither *Colonial Leasing Co. of New England, Inc. v. Logistics Control Grp. Int'l*, 762 F.2d 454 (5th Cir. 1986), nor *Conway v. Chemical Leaman Tank Lines, Inc.*, 610 F.2d 360 (5th Cir. 1980), even mentions discovery. Further, both cases acknowledge that there is no *per se* rule against the taking of judicial notice post-trial and even on appeal. *See* 762 F.2d at 461 (expressly refusing to hold that post-trial judicial notice is *per se* improper); 610 F.2d at 366 (noting possibility that Court would *sua sponte* take judicial notice even for first time on appeal, on clear data that was not before the Court).

As he has done in previous briefing and with every other successful crash test of the ET Plus, Harman's Response is to complain about the FHWA-approved testing process and to attack the federal agency, its authoritative analysis, and the successful test results. Harman's complaints are irrelevant to the judicial notice determination and improper in an FCA case. As Trinity has previously argued in this case, the FCA does not allow a private party like Harman to

supplant an agency's authority and decision-making. *See, e.g.*, Defs.' Mot. to Dismiss at 32-34, Dkt. No. 29 (collecting cases). Despite this prohibition, Harman has repeatedly used this FCA case as a vehicle to attempt to usurp and undermine the FHWA's conclusions and determinations regarding its own rules and regulations. Harman's latest Response is no different and consists entirely of his increasingly defiant attacks on the FHWA's authority to interpret and apply *its own guidelines* concerning the testing of highway safety devices under NCHRP Report 350.

What is telling about Harman's Response is that his complaints about the FHWA's crash testing conclusions are nothing more than his disagreement with how the FHWA, *not Trinity*, has evaluated and determined federal-aid eligibility for the ET Plus. The arguments Harman advances make clear that he is no longer even pretending that this FCA case is about the FHWA being deceived, defrauded or damaged in connection with changes to the ET Plus. Rather, knowing full well that the FHWA is fully aware, has investigated, and rejected the allegations he has made in this case, Harman turns again to attacking the very federal agency he purportedly represents.

While Harman's arguments that the FHWA supposedly "did not follow [its] standards" or "created a new standard" are entirely irrelevant to his fraud claims in this case, these arguments are also incorrect. *First*, Harman and his expert argue the Test Results are flawed because the FHWA should have interpreted and applied its own policy memorandum<sup>2</sup> to require the crash testing to be performed with ET Plus terminals with "worst-case" dimensions. *See Resp.* at 6, Dkt. No. 687. As stated in a previous filing—Harman's argument flies in the face of the FHWA's express determination that NCHRP Report 350 applies "worst-case testing conditions" only to the "*types of tests to be conducted*" and "does not apply worst-case testing conditions to the test article" itself. *See Dkt. No. 693* at 6 (citing Report at 10-11, Dkt. No. 674-3).

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<sup>2</sup> FHWA Memorandum "Identifying Acceptable Highway Safety Features," July 25, 1997, Trial Ex. D-10.

Second, Harman and his paid expert criticize the FHWA for failing to require that the ET Plus be subjected to testing not encompassed by the applicable NCHRP Report 350 criteria and not applied to any other end terminal systems approved and installed on the roadways. *See* Resp. at 6, Dkt. No. 687. Harman's argument is premised on: (1) his fundamentally flawed claim that research and developmental crash tests of a non-commercialized, experimental project conducted by Texas A&M (that was never brought to market and that is entirely distinct from the ET Plus System in multiple different components, layout, and configuration) somehow reveals vulnerabilities in ET Plus performance, and (2) unsupported statements by Harman that real world accidents purportedly at shallow angles show that the ET Plus is failing to perform as required by NCHRP Report 350. As Trinity and the ET Plus designers, Texas A&M University, have previously demonstrated, test results from the experimental *flared* end terminal testing are not applicable to, or indicative of, impact performance of the commercialized, *tangent* ET Plus system, which is recognized by AASHTO as an entirely different category of guardrail end treatment than the experimental flared end terminal. *See, e.g.*, Dkt. No. 486. Likewise, neither Harman nor his expert have provided any actual evidence or data to support their allegations that the ET Plus has performed poorly in real world, shallow-angle impacts (much less that any impacts in real world crashes with the ET Plus even involved shallow-angle impacts).

Even more, the FHWA, not Trinity, requested and approved post-trial the specific crash tests that would be run in connection with the post-trial testing, and the FHWA has determined based on the Test Results that the ET Plus is NCHRP Report 350 compliant. Harman's disagreement with the FHWA's test plan for the ET Plus pursuant to NCHRP Report 350 should play no role in this FCA case against Trinity, as it has no relevance to any alleged false or fraudulent act supposedly undertaken by Trinity. Perhaps most strikingly, Harman's insistence

that the ET Plus now be required to pass shallow angle testing is nothing short of a request that the FHWA change the criteria by which all other NCHRP Report 350 compliant products are reviewed and evaluate the ET Plus using “different guidelines than those in place at the time Defendants submitted the ET-Plus for acceptance.” *See* Resp. at 3, Dkt. No. 687. Despite arguing that the ET Plus crash tests already conducted (and passed) are invalid for applying post-hoc standards, Harman himself would have the ET Plus subjected to a series of crash tests that no other end terminal manufacturer has ever been required to satisfy under NCHRP Report 350 (including those developed by Harman’s consulting expert that compete directly with the ET Plus). There is no test or field data with respect to the ET Plus that indicates a performance issue and no justification or cause for imposing a new standard on the ET Plus based on Harman’s desperate and ever-changing attempts to salvage the crumbling theory of his case. Again, the ET Plus is now the most crash tested guardrail end terminal currently on the market and performs as tested and accepted by the FHWA.

*Third*, Harman again disagrees with the FHWA’s determination (and that of an independent testing agency and independent expert) that the occupant compartment deformation level experienced in the eighth crash test is acceptable under NCHRP Report 350. Harman’s attacks here are yet another example of his personal disagreement with the FHWA’s agency determinations, which he summarily rejects. To begin, Harman and his expert incorrectly state, contrary to the FHWA’s own guidelines and practice, that occupant compartment deformation in excess of six inches will automatically result in a failed test under NCHRP Report 350. *See* Resp. at 8, 10-11, Dkt. No. 687 (citing Coon Decl. ¶¶ 11, 16, 31, 37, 42, Dkt. No. 687-1). Harman should know that this proposition is not true, as his own consulting expert has submitted crash testing of a highway safety product that his expert designed and submitted for FHWA

acceptance with occupant compartment deformations greater than six inches and has concluded (along with other engineers at the testing facility he used) that such deformations meet NCHRP Report 350 criteria.<sup>3</sup>

Harman points to materials that reference a purported six-inch occupant compartment deformation draft “guideline,” and summarily concludes that this draft “guideline” is the FHWA’s pass-fail standard for occupant compartment deformation. *See* Coon Decl. ¶ 10 & n.3. In reality, however, NCHRP Report 350 contains no objective, numerical standard for assessing occupant compartment deformation, but provides only that occupant compartment deformation that “could cause serious injuries should not be permitted.”<sup>4</sup> For its part, the FHWA at one time discussed six inches as a measurement beyond which “serious injuries” might occur, but never formalized six inches as a mandatory criteria and never made six inches, or any specific measurement, a criteria in NCHRP Report 350 – pass, fail, or otherwise. *See* Coon Ex. 4 at 2.

Instead, in determining NCHRP Report 350 compliance, the FHWA, as well as crash testing agencies, have always evaluated various factors in assessing occupant compartment deformations and has not applied a specific numeric deformation limit. As Harman himself should be well aware, researchers and developers have long submitted crash tests for FHWA approval—despite reporting occupant compartment deformation well in excess of six inches—based on their determination that the particular deformation experienced (in excess of six inches) was not likely to “cause serious injuries” under NCHRP Report 350.<sup>5</sup> Such has been the case for

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<sup>3</sup> *See* FHWA Acceptance Letter HAS-10/CC-69C for the BEAT-BP submitted by Road Systems, Inc. (Dec. 12, 2003), *available at* [http://safety.fhwa.dot.gov/roadway\\_dept/policy\\_guide/road\\_hardware/barriers/pdf/cc69c.htm](http://safety.fhwa.dot.gov/roadway_dept/policy_guide/road_hardware/barriers/pdf/cc69c.htm); *see also* Road Systems, Inc. Press Release re FHWA Acceptance Letter CC-69C – BEAT-BP (Bridge Pier Protection System), *available at* <http://www.roadsystems.com/pdf/beat-bp/2003-12-12.pdf>.

<sup>4</sup> *See* NCHRP Report 350 at 54, Table 5.1, Part D.

<sup>5</sup> Several additional examples of acceptance letters issued based on testing with occupant compartment deformation in excess of 6” can be found on the FHWA’s website, including, but not limited to, the following letters. *See, e.g.*, FHWA Acceptance Letter HAS-10/CC-69C for the BEAT-BP submitted by Road Systems, Inc. (Dec. 12, 2003);

many years prior to the recent ET Plus crash testing, and is not the result of any post-hoc adjustments to the FHWA's standards.

For example, as discussed above, Harman's own consulting expert—Dr. Dean Sicking<sup>6</sup>—sought and received FHWA approval in 2003 for one of the highway safety products that he designed, that is currently installed on the nation's roadways, based on Sicking's and the testing agency's assessment, accepted by the FHWA, that deformations of 8", 7 5/8", and 7 1/2" (and four additional deformations reported as exceeding 6 inches at four additional locations in the driver compartment) met NCHRP Report 350 criteria and were not likely to cause serious injury.<sup>7</sup>



Photographs of post-test damage to vehicle used in NCHRP Report 350 crash testing of Dr. Sicking's BEAT-BP (Bridge Pier Protection System), in which Dr. Sicking and the testing facility determined that several occupant compartment deformations of greater than six inches met NCHRP Report 350 criteria.

Despite Harman's claims now that any deformation over six inches must result in a failure under NCHRP Report 350, Harman's consulting expert, Sicking, concluded for his product (in the crash test pictured above) that several deformations well in excess of six inches "were not sufficient to cause the test to be judged a failure...that the results of the test indicate that this

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FHWA Acceptance Letter HSST/B-224 (Dec. 3, 2011) for the T401 Bridge Railing; FHWA Acceptance Letter HSA-10/B102, from FHWA to Mr. David Eichbrecht (July 3, 2002).

<sup>6</sup> Under MASH, the current testing criteria for new safety devices, which was authored in part by Dr. Sicking, nine to twelve inches of occupant compartment deformation to a door is acceptable. Accordingly, the level of occupant compartment deformation measured in the eighth ET Plus crash test would also satisfy MASH criteria, a standard touted by Harman.

<sup>7</sup> See FHWA Acceptance Letter HAS-10/CC-69C for the BEAT-BP submitted by Road Systems, Inc. (Dec. 12, 2013), available at [http://safety.fhwa.dot.gov/roadway\\_dept/policy\\_guide/road\\_hardware/barriers/pdf/cc69c.htm](http://safety.fhwa.dot.gov/roadway_dept/policy_guide/road_hardware/barriers/pdf/cc69c.htm); see also Road Systems, Inc. Press Release re FHWA Acceptance Letter CC-69C – BEAT-BP (Bridge Pier Protection System), available at <http://www.roadsystems.com/pdf/beat-bp/2003-12-12.pdf>.

design is a suitable design for use on Federal aid highways.”<sup>8</sup>

Here, like the testing agency that assessed the product developed and tested by Harman’s expert, SwRI determined that the occupant compartment deformation that occurred in the eighth ET Plus crash test was not likely to cause serious injury. As in the case of Dr. Sicking’s product, the FHWA (concurrent with by an independent biomechanical engineer, Dr. Gabler) agreed with the testing agency’s assessment and reached its own independent determination that the ET Plus is NCHRP Report 350 compliant. Harman’s argument that the FHWA was only able to declare the eighth crash test a pass under NCHRP Report 350 by retroactively modifying its rules and regulations or by improperly applying its pre-existing standards is invalid, incorrect, and an improper attempt to circumvent the official determinations of the FHWA, the one and only authority on federal-aid eligibility under NCHRP Report 350 criteria.

Relatedly, Harman also criticizes FHWA and SwRI for the methods it employed in measuring the occupant compartment deformation experienced in the eighth crash test. *See* Resp. at 7, Dkt. No. 687. Again, without citing any rule or requirement in NCHRP Report 350 or elsewhere, Harman opines that the level of occupant compartment deformation experienced during the ET Plus crash tests should have been measured “dynamically”—or during the crash test itself. *See, e.g.*, Coon Decl. ¶ 23, Dkt. No. 287-1. Harman’s suggestion is contradicted by (1) the text of NCHRP Report 350, which discusses measurement of occupant compartment deformation levels before and *after* testing;<sup>9</sup> (2) the FHWA’s official evaluation and acceptance of the Test Results and methodology; and (3) the numerous crash testing previously performed by crash testing agencies, including by both of Harman’s experts (Dr. Sicking and his former student, Dr. Coon), on numerous other products that have all used post-test static measurements

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<sup>8</sup> Performance Evaluation of the Redesigned BEAT Bridge Pier Protection System, August 12, 2003, pp. i and 47, attached as Exhibit A.

<sup>9</sup> *See* NCHRP Report 350, Appendix E.

(not dynamic measurements) of occupant compartment deformation in their reports to the FHWA. Here, again, Harman is attempting to craft a unique set of requirements that only the ET Plus—and no other end terminal product—must satisfy to comply with NCHRP Report 350, despite the FHWA’s own determination that such requirements do not apply.

Strikingly, the “dynamic” measurement that Harman suggests is or should be the “rule” was not used by his experts, Dr. Sicking or Dr. Coon, in measuring and evaluating the occupant compartment deformations that occurred in crash testing of highway products developed by Dr. Sicking (BEAT-BP and SKT end terminal).<sup>10</sup> Tellingly, Dr. Coon has not cited any instance in which a so-called “dynamic” measurement was actually employed or required. In fact, unlike the testing SwRI performed on the ET Plus, in both tests of Dr. Sicking’s products, it appears that no onboard cameras were even used by Dr. Sicking or Dr. Coon to record and document the occupant compartment during the test, the crash test dummy and its interaction in the vehicle, or the actual occupant compartment deformation. None appears to have been provided to the

<sup>10</sup> Harman’s consulting expert did not do dynamic measurements of the multiple occupant compartment deformations that were greater than six inches in the testing of the BEAT-BP, but rather reported post-test measurements. *See* FHWA Acceptance Letter HAS-10/CC-69C for the BEAT-BP submitted by Road Systems, Inc. (Dec. 12, 2013), available at [http://safety.fhwa.dot.gov/roadway\\_dept/policy\\_guide/road\\_hardware/barriers/pdf/cc69c.htm](http://safety.fhwa.dot.gov/roadway_dept/policy_guide/road_hardware/barriers/pdf/cc69c.htm); *see also* Performance Evaluation of the Redesigned BEAT Bridge Pier Protection System at App. A (Aug. 12, 2003) (setting out “VEHICLE PRE/POST CRUSH INFO”), a true and correct copy of which was obtained via a FOIA request and is attached hereto as Exhibit A. Similarly, in an October 12, 2006 crash test report authored by both of Harman’s experts, Dr. Sicking and his former student Dr. Coon, concerning the SKT-MSG Tangent End Terminal (which competes directly with the ET Plus), the occupant compartment deformation that occurred and is shown below (which was slightly over six inches) was not measured “dynamically” but rather in post-test static measurements, just as SwRI conducted. *See* Performance Evaluation of the SKT-MGS Tangent End Terminal – Update to NCHRP Report 350 Test No. 3-34 (2214TT-1) at 38-40 & App. C (setting out “VEHICLE PRE/POST CRUSH INFO”), available at <http://nlcs1.nlc.state.ne.us/epubs/R6000/B016.0176-2006.pdf>.



Photographs of post-test damage to vehicle used in crash testing of SKT-MSG Tangent End Terminal at Figure 37 of Report.

Nor do Harman or his expert explain how such a “dynamic” measurement would even be made, as there is no reliable or repeatable method for quantifying maximum dynamic deformation as it is occurring inside the vehicle. This simply is not part of the evaluation in NCHRP Report 350 or even the MASH standard.

FHWA by Harman's experts. Researchers and developers—including Dr. Sicking and Dr. Coon—have routinely submitted crash test reports for FHWA evaluation that include static, post-test measurements of occupant compartment deformation.<sup>11</sup> Dynamic measurements are neither typical nor required, and Harman's insistence that this new rule be applied only to the ET Plus is again without merit.

Finally, Harman and Dr. Coon reject the Crash Testing determinations of the FHWA and its independent expert outright and claim “real-world crash data” demonstrates impacts causing deformations to the driver's side door purportedly similar to the eighth crash test of the ET Plus makes the end terminal “dangerous” and should presumably require it to fail NCHRP Report 350 testing criteria. Resp. at 11-12. Harman and Dr. Coon include a photograph of a damaged car (where no penetration of the guardrail occurred) and argue, again with no evidence or data, that the “real-world crash” and the crash testing of the ET Plus involve similar impact conditions and results.<sup>12</sup> Presumably, under Dr. Coon's theory, the fact that an end terminal caused occupant compartment deformation in the driver's side door in a “real world crash” makes it “dangerous” and should result in a failure of NCHRP Report 350 crash testing criteria. But Dr. Coon (and Harman's other expert, Dr. Sicking) fail to apply this same standard (however flawed) to the end terminal products they have developed, tested, and sold. Below is photograph of a “real world crash” involving Dr. Sicking's SKT end terminal (the competing product to the ET Plus).

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<sup>11</sup> See, e.g., FHWA Acceptance Letter HAS-10/CC-69C for the BEAT-BP submitted by Road Systems, Inc. (Dec. 12, 2003); FHWA Acceptance Letter HSST/B-224 (Dec. 3, 2011) for the T401 Bridge Railing; FHWA Acceptance Letter HSA-10/B102, from FHWA to Mr. David Eichbrecht (July 3, 2002).

<sup>12</sup> Harman and Dr. Coon provide no evidence of the circumstances or impact conditions involved in the accident photograph they show.



March 2012 Accident in San Antonio, Texas involving the Dr. Sicking designed SKT tangent end terminal.

Both Dr. Coon and Dr. Sicking have been involved in the crash testing of the SKT, and contrary to their claims about the ET Plus and “real world crashes” involving impacts to the driver’s side door, both have opined the SKT is crashworthy and meets crash testing criteria. Notably, contrary to Harman’s claims that deformations to the driver side door like those in crash test eight must result in serious injuries and should not pass NCHRP Report 350 criteria, media reports concerning the SKT accident above stated that the driver was not injured in this crash.<sup>13</sup> And further contrary to Harman’s claims, photographs alone (of the ET Plus or other end terminals) do not provide the full picture of the circumstances or aftermath of an impact, as evidenced by this seemingly large door deformation caused by a SKT end terminal guardrail that did not reportedly injure the occupant.

In all, despite the FHWA’s definitive interpretation and determinations of its own guidelines and standards, Harman (who admitted before this Court that he is neither an engineer nor an expert in NCHRP Report 350) and his expert (a traffic engineer for the City of Wichita) repeatedly criticize the FHWA—as well as an independent expert and testing agency who performed and analyzed the Test Results—for failing to comply with interpretations of the FHWA’s guidelines that the FHWA itself has squarely rejected. Yet again, Harman and his expert do not dictate highway safety policy for the nation, and his latest attempts to evade and

<sup>13</sup> <http://www.ksat.com/content/pns/ksat/news/2012/03/13/car-impaled-by-guardrail.html>.

undermine the agency authority of the FHWA through this FCA suit are irrelevant, improper, and should be rejected. For these reasons, and for those discussed in more detail in Trinity's previous filings, *see* Dkt. Nos. 662 and 693,<sup>14</sup> Harman's attacks on the Test Results lack merit and should be squarely rejected.<sup>15</sup>

### CONCLUSION

Based on the foregoing, Trinity respectfully requests that the Court grant its Request for Judicial Notice of FHWA's Determination on Full Scale Crash Testing of the ET Plus Guardrail Terminal (Dkt. No. 677), and any further and just relief to which Trinity may be entitled.

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<sup>14</sup> For the reasons briefed extensively by Trinity in prior filings, Harman's remaining substantive attacks on the data and methods used by the FHWA, Dr. Gabler, and SwRI to arrive at the Test Results are entirely without merit. *See* Dkt. No. 662 at 6-7, 9; Dkt. No. 693 at 7-8.

<sup>15</sup> Harman's demand for discovery in connection with Trinity's request for judicial notice is nothing more than a red herring. There is no reasonable dispute concerning the facts upon which Trinity seeks judicial notice. The FHWA's determinations with respect to the Test Results can be accurately and readily determined from the FHWA's publically available statements on the subject, and Trinity's request for judicial notice of those determinations does not entitle Harman to engage in a broad and expensive post-trial fishing expedition.

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Respectfully submitted,

Russell C. Brown, Texas Bar No. 03167510  
THE LAW OFFICES OF RUSSELL C. BROWN, P.C.  
P.O. Box 1780  
Henderson, Texas 75653-1780  
Telephone: (903) 657-8553  
Fax: (903) 655-0218  
Russell@rcbrownlaw.com

Mike Miller  
Texas Bar No. 14101100  
201 W. Houston Street  
Marshall, Texas 75670  
Telephone: (903) 938-4395  
Fax: (903) 938-3360

Heather Bailey New, Texas Bar No. 24007642  
BELL NUNNALLY & MARTIN, LLP  
3232 McKinney Avenue, Suite 1400  
Dallas, Texas 75204  
Telephone: (214) 740-1425  
Fax: (214) 740-1499  
heathern@bellnunnally.com

J. Mark Mann, Texas Bar No. 12926150  
MT2 LAW GROUP  
300 West Main Street  
Henderson, Texas 75652  
Telephone: (903) 657-8540  
Fax: (903) 657-6003  
mm@themannfirm.com

/s/ Sarah R. Teachout

Ethan L. Shaw, Texas Bar No. 18140480  
SHAW COWART, LLP  
1609 Shoal Creek Blvd., Suite 100  
Austin, Texas 78701  
Telephone: (512) 499-8900  
Fax: (512) 320-8906  
elshaw@shawcowart.com

Sarah R. Teachout, Texas Bar No. 24008134  
Arnold Spencer, Texas Bar No. 00791709  
AKIN GUMP STRAUSS HAUER & FELD, LLP  
1700 Pacific Avenue, Suite 4100  
Dallas, Texas 75201-4624  
Telephone: (214) 969-2800  
Fax: (214) 969-4343  
steachout@akingump.com  
aspencer@akingump.com

Robert M. (Randy) Roach, Jr., Texas Bar No.  
16969100  
John W. Newton, III, Texas Bar No. 14983300  
Manuel Lopez, Texas Bar No. 00784495  
Roach & Newton, LLP  
1111 Bagby Street, Suite 2650  
Houston, Texas 77002  
Telephone: (713) 652-2032  
Fax: (713) 652-2029

**Attorneys for Defendants, Trinity Industries, Inc. and Trinity Highway Products, LLC**

**CERTIFICATE OF SERVICE**

I hereby certify that a true and correct copy of the foregoing instrument has been served on counsel for all parties via the Court's CM/ECF system on this 13th day of April, 2015.

*/s/ Sarah R. Teachout* \_\_\_\_\_

Sarah R. Teachout