



U.S. Department
of Transportation
**Federal Highway
Administration**

1200 New Jersey Ave., SE
Washington, D.C. 20590

December 18, 2015

In Reply Refer To:
HSST/CC-34C

Mr. Barry Stephens
Trinity Highway Products, LLC
3617 Cincinnati Ave.
Rocklin, CA 95677

Dear Mr. Stephens:

This letter is in response to your June 13, 2014 request for the Federal Highway Administration (FHWA) to review a roadside safety device, hardware, or system for eligibility for reimbursement under the Federal-aid highway program. This FHWA letter of eligibility is assigned FHWA control number HSST/CC-34C and is valid until a subsequent letter is issued by FHWA that expressly references this device.

Decision

The following device is eligible, with details provided in the form which is attached as an integral part of this letter.

- MPS-350X Truck Mounted Attenuator (TMA) Modification

Scope of this Letter

To be found eligible for Federal-aid funding, new roadside safety devices should meet the crash test and evaluation criteria contained in the National Cooperative Highway Research Program (NCHRP) Report 350. However, the FHWA, the Department of Transportation, and the United States Government do not regulate the manufacture of roadside safety devices. Eligibility for reimbursement under the Federal-aid highway program does not establish approval, certification or endorsement of the device for any particular purpose or use.

This letter is not a determination by the FHWA, the Department of Transportation, or the United States Government that a vehicle crash involving the device will result in any particular outcome, nor is it a guarantee of the in-service performance of this device. Proper manufacturing, installation, and maintenance are required in order for this device to function as tested.

This finding of eligibility is limited to the crashworthiness of the system and does not cover other structural features, nor conformity with the Manual on Uniform Traffic Control Devices.

Eligibility for Reimbursement

FHWA previously issued an eligibility letter for the roadside safety system described in your pending request. Your pending request now identifies a modification to that roadside safety system.

The original roadside safety device information is provided here:

Name of system: MPS 350 truck-mounted attenuator (TMA)
Type of system: Crash Cushion
Date of original request: December 6, 2002
Date of original FHWA eligibility letter: March 5, 2003
FHWA Control number: HSA-10/CC34B

The pending modification(s) consists of the following changes:

1. Framework will be available in either painted or galvanized finish. The winch attachment brackets are changed to place the winch in a level, horizontal mounting position. This modification has no effect to the load bearing structural elements or to the previous as-tested performance.
2. Provide lighting systems in either 12 or 24 volt, and incandescent or LED type lights. This modification has no effect to the load bearing structural elements of to the previous as-tested performance.
3. Add winch controls including both upper & lower limit switches, attitude tilt sensor, low voltage shut off and audible alarm. This modification is to improve winch performance has no effect to the previous as-tested impact performance.
4. Trapezoidal shaped formed plastic impact face cover with multiple striping patterns to meet specific state standards. The light weight and low strength plastic cover shape modification will have no effect to the previous as-tested performance.
5. Informative decal package. This modification has no effect to the previous as-tested performance.

FHWA concurs with the recommendation of the accredited crash testing laboratory as stated within the attached form.

Full Description of the Eligible Device

The device and supporting documentation, including reports of the crash tests or other testing done, videos of any crash testing, and/or drawings of the device, are described in the attached form.

Notice

If a manufacturer makes any modification to any of their roadside safety hardware that has an existing eligibility letter from FHWA, the manufacturer must notify FHWA of such modification with a request for continued eligibility for reimbursement. The notice of all modifications to a device must be accompanied by:

- Significant modifications – For these modifications, crash test results must be submitted with accompanying documentation and videos.
- Non-signification modifications – For these modifications, a statement from the crash test laboratory on the potential effect of the modification on the ability of the device to meet the relevant crash test criteria.

FHWA's determination of continued eligibility for the modified hardware will be based on whether the modified hardware will continue to meet the relevant crash test criteria.

You are expected to supply potential users with sufficient information on design, installation and maintenance requirements to ensure proper performance.

You are expected to certify to potential users that the hardware furnished has the same chemistry, mechanical properties, and geometry as that submitted for review, and that it will meet the test and evaluation criteria of the NCHRP Report 350.

Issuance of this letter does not convey property rights of any sort or any exclusive privilege. This letter is based on the premise that information and reports submitted by you are accurate and correct. We reserve the right to modify or revoke this letter if: (1) there are any inaccuracies in the information submitted in support of your request for this letter, (2) the qualification testing was flawed, (3) in-service performance or other information reveals safety problems, (4) the system is significantly different from the version that was crash tested, or (5) any other information indicates that the letter was issued in error or otherwise does not reflect full and complete information about the crashworthiness of the system.

Standard Provisions

- To prevent misunderstanding by others, this letter of eligibility designated as FHWA control number CC-34C shall not be reproduced except in full. This letter and the test documentation upon which it is based are public information. All such letters and documentation may be reviewed upon request.
- This letter shall not be construed as authorization or consent by the FHWA to use, manufacture, or sell any patented system for which the applicant is not the patent holder.
- If the subject device is a patented product it may be considered to be proprietary. If proprietary systems are specified by a highway agency for use on Federal-aid projects: (a) they must be supplied through competitive bidding with equally suitable unpatented items; (b) the highway agency must certify that they are essential for synchronization with the existing highway facilities or that no equally suitable alternative exists; or (c) they must be used for research or for a distinctive type of construction on relatively short sections of road for experimental purposes. Our regulations concerning proprietary products are contained in Title 23, Code of Federal Regulations, Section 635.411.

Sincerely yours,



Michael S. Griffith

Director, Office of Safety Technologies
Office of Safety

Enclosures

Request for Federal Aid Reimbursement Eligibility Of Highway Safety Hardware

Submitter	Date of Request:	June 13, 2014	<input type="radio"/> New <input checked="" type="radio"/> Resubmission
	Name:	Bret Eckert, P.E.	<i>Bret Eckert</i>
	Company:	Trinity Highway	
	Address:	3617 Cincinnati Ave., Rocklin, CA 95677	
	Country:	USA	
	To:	Michael S. Griffith, Director FHWA, Office of Safety Technologies	

I request the following devices be considered eligible for reimbursement under the Federal-aid highway program.

System Type	Submission Type	Device Name / Variant	Testing Criterion	Test Level
'CC': Truck-Mounted Attenuators (TMA)	<input checked="" type="radio"/> Physical Crash Testing <input type="radio"/> FEA & V&V Analysis	MPS-350X	NCHRP Report 350	TL3

By submitting this request for review and evaluation by the Federal Highway Administration, I certify that the product(s) was (were) tested in conformity with the NCHRP Report 350 (Report 350) and that the evaluation results meet the appropriate evaluation criteria in the Report 350.

Identification of the individual or organization responsible for the product:

Contact Name:	Barry Stephens	Same as Submitter <input type="checkbox"/>
Company Name:	Trinity Highway	Same as Submitter <input checked="" type="checkbox"/>
Address:	3617 Cincinnati Ave., Rocklin, CA 95677	Same as Submitter <input checked="" type="checkbox"/>
Country:	USA	Same as Submitter <input type="checkbox"/>
Modification to Existing Hardware Non-Significant - Effect is positive or Inconsequential		

Request for Federal Aid Reimbursement Eligibility Of Highway Safety Hardware

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	Name:	Bret Eckert, P.E.	
	Company:	Trinity Highway	
	Address:	3617 Cincinnati Ave., Rocklin, CA 95677	
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Contact Name:	Barry Stephens	Same as Submitter <input type="checkbox"/>
Company Name:	Trinity Highway	Same as Submitter <input checked="" type="checkbox"/>
Address:	3617 Cincinnati Ave., Rocklin, CA 95677	Same as Submitter <input checked="" type="checkbox"/>
Country:	USA	Same as Submitter <input type="checkbox"/>
Modification to Existing Hardware Non-Significant - Effect is positive or Inconsequential		

PRODUCT DESCRIPTION

The Trinity MPS 350 Truck Mounted Attenuator was originally tested by Southwest Research Institute (SWRI) and awarded FHWA Eligibility Letter CC-34 in May of 1996 for a Test Level 2 device. Following a 108 kg weight reduction and the addition of slots in two layers of 16 gauge steel plate in the beam assemblies and subsequent SWRI conducted tests 3-50 and 3-51 and Report 06-4995-001, the FHWA Eligibility Letter CC-34A was awarded in October 1996 for a Test Level 3 device. In 2002 a 0.53 meter wider impact fence and strengthened attachment between the cutter assemblies and the structural supports increased the overall weight by 23 kg. This modification was tested by SWRI in NCHRP 350 tests 3-52 and 3-53 that resulted in FHWA Eligibility Letter CC-34B for the TL-3 TMA device with optional tests.

This request is to accept the as-tested MPS 350 per CC-34, CC-34A and CC-34B with the following modifications:

1. Framework will be available in either painted or galvanized finish. The winch attachment brackets are changed to place the winch in a level, horizontal mounting position. This modification has no effect to the load bearing structural elements or to the previous as-tested performance.
2. Provide lighting systems in either 12 or 24 volt, and incandescent or LED type lights. This modification has no effect to the load bearing structural elements of to the previous as-tested performance.
3. Add winch controls including both upper & lower limit switches, attitude tilt sensor, low voltage shut off and audible alarm. This modification is to improve winch performance has no effect to the previous as-tested impact performance.
4. Trapezoidal shaped formed plastic impact face cover with multiple striping patterns to meet specific state standards. The light weight and low strength plastic cover shape modification will have no effect to the previous as-tested performance.
5. Informative decal package. This modification has no effect to the previous as-tested performance.

The component modifications described above are considered Non-Significant, Effect Positive or Inconsequential and request the FHWA. The Testing Laboratory's signature concurs that these modifications are considered Non-significant and the effect is Positive and Inconsequential.

CRASH TESTING

A brief description of each crash test and its result:

Required Test Number	Narrative Description	Evaluation Results
3-50 (820C)	Original Laboratory Test No. EX-TMA-9. Date of Test 9/4/96. Crash Test Report No 06-4995-001. Test 3-50 is requested to be waived for this modification as no changes to the load bearing path of the device have been made. All modifications do not affect the as-tested structure of the MPS-350. This modification is considered non-significant with inconsequential effect.	WAIVER REQUESTED
S3-50 (700C)	Optional Test	
3-51 (2000P)	Original Laboratory Test No. EX-TMA-6. Date of Test 3/1/96. Crash Test Report No 06-4995-001. Test 3-51 is requested to be waived for this modification as no changes to the load bearing path of the device have been made. All modifications do not affect the as-tested structure of the MPS-350. This modification is considered non-significant with inconsequential effect.	WAIVER REQUESTED
3-52 (2000P)	Original Laboratory Test No. MPS-SWED. Date of Test 4/15/02. Crash Test Report No 18.04177.01.012. Test 3-52 is requested to be waived for this modification as no changes to the load bearing path of the device have been made. All modifications do not affect the as-tested structure of the MPS-350. This modification is considered non-significant with inconsequential effect.	WAIVER REQUESTED

Required Test Number	Narrative Description	Evaluation Results
3-53 (2000P)	Original Laboratory Test No. MPS-3-53. Date of Test 8/26/02. Crash Test Report No 18.04177.01.015. Test 3-53 is requested to be waived for this modification as no changes to the load bearing path of the device have been made. All modifications do not affect the as-tested structure of the MPS-350. This modification is considered non-significant with inconsequential effect.	WAIVER REQUESTED

Full Scale Crash Testing was done in compliance with Report 350 by the following accredited crash test laboratory (cite the laboratory's accreditation status as noted in the crash test reports.):

Testing Laboratory's signature concurs that these modifications are considered Non-Significant and the effect is positive or inconsequential.		
Laboratory Contact Signature:	Jenny Ferren	<small>Digitally signed by Jenny Ferren DN: cn=Jenny Ferren, o=Southwest Research Institute, c=US Date: 2014.06.09 08:51:38 -0700</small>
Laboratory Name:	Southwest Research Institute	
Laboratory Contact:	Jenny Ferren	Same as Submitter <input type="checkbox"/>
Address:	6220 Culebra Dr., San Antonio, TX 78238	Same as Submitter <input type="checkbox"/>
Country:	USA	Same as Submitter <input type="checkbox"/>
Accreditation Certificate Number and Date:	ISO/IEC 17025:2005; A2LA Certificate Number: 1110.02, 03/31/2016	

Submitter Signature*: **Bret Eckert**

Digitally signed by Bret Eckert
DN: cn=Bret Eckert, o, ou,
email=bret.eckert@tmn.net, c=US
Date: 2014.06.09 08:51:38 -0700

ATTACHMENTS

Attach to this form:

- 1) A copy of the full test report, video, and a Test Data Summary Sheet for each test conducted in support of this request.
- 2) A drawing or drawings of the device(s) that conform to the Task Force-13 Drawing Specifications [[Hardware Guide Drawing Standards](#)]. For proprietary products, a single isometric line drawing is usually acceptable to illustrate the product, with detailed specifications, intended use, and contact information provided on the reverse. Additional drawings (not in TF-13 format) showing details that are key to understanding the performance of the device should also be submitted to facilitate our review.

FHWA Official Business Only:

Eligibility Letter		AASHTO TF13	
Number	Date	Designator	Key Words
CC34C	September 05, 2014		TMA, NCHRP Report 350, TL3

SOUTHWEST RESEARCH INSTITUTE®

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Mechanical Engineering Division
June 6, 2014

Gregory A. Neece
Director, Emerging Products
Trinity Highway Products, LLC.
2525 Stemmons Freeway
Dallas, TX 75204
E-mail: greg.neece@trin.net

Subject: SwRI® Review of Trinity Submittal to FHWA for MPS-350X Truck-Mounted Attenuator (TMA) – Request for Federal Aid Reimbursement Eligibility of Highway Safety Hardware, April 25, 2014

Dear Mr. Neece:

Thank you for contacting Southwest Research Institute (SwRI) regarding your request for federal aid reimbursement eligibility of highway safety hardware for the MPS-350X truck-mounted attenuator (TMA). It is our understanding your product has undergone several modifications, and you are requesting it be accepted by the Federal Highway Administration (FHWA) based on previous testing by SwRI due to the nature of the modifications.

We concur with the following product description based on the crash testing summarized in Table 1, both submitted with your request to FHWA, that the component modifications described are considered non-significant, and the effect is inconsequential.

The Trinity MPS-350 truck-mounted attenuator was originally tested by Southwest Research Institute (SwRI) and awarded FHWA eligibility letter CC-34, in May of 1996, for a Test Level 2 device. Following a 108-kg weight reduction and the addition of slots in two layers of 16-gauge steel plate in the beam assemblies, and subsequent SwRI conducted tests 3-50 and 3-51 and report 06-4995-001, the FHWA eligibility letter CC-34A was awarded in October 1996 for a Test Level 3 device. In 2002, a 0.53-meter wider impact fence and strengthened attachment between the cutter assemblies and the structural supports increased the overall weight by 23 kg. This modification was tested by SwRI in NCHRP 350 tests 3-52 and 3-53 that resulted in FHWA eligibility letter CC-34B for the TL-3 TMA device with optional tests.

This request is to accept the as-tested MPS-350 per CC-34, CC-34A and CC-34B with the following modifications:

- 1. Framework will be available in either painted or galvanized finish. The winch attachment brackets are changed to place the winch in a level, horizontal mounting position. This modification has no effect to the load bearing structural elements or to the previous as-tested performance.*
- 2. Provide lighting systems in either 12- or 24-volt, and incandescent or LED type lights. This modification has no effect to the load bearing structural elements or to the previous as-tested performance.*
- 3. Add winch controls including both upper and lower limit switches, attitude tilt sensor, low voltage shut off and audible alarm. This modification is to improve winch performance has no effect to the previous as-tested impact performance.*
- 4. Trapezoidal shaped formed plastic impact face cover with multiple striping patterns to meet specific state standards. The light weight and low strength plastic cover shape modification will have no effect to the previous as-tested performance.*
- 5. Informative decal package. This modification has no effect to the previous as-tested performance.*



HOUSTON, TEXAS (713) 977-1377 • DETROIT, MICHIGAN (248) 353-2550 • WASHINGTON, DC (301) 881-0289

Table 1: Summary of Previous Crash Testing by SwRI of Trinity MPS-350 Truck-Mounted Attenuator

<i>Required Test Number</i>	<i>Narrative Description</i>	<i>Evaluation Results</i>
3-50 (820C)	<i>Original laboratory test no. EX-TMA-9. Date of test: 9/4/96. Crash test report no. 06-4995-001. Test 3-50 is requested to be waived for this modification as no changes to the load bearing path of the device have been made. All modifications do not affect the as-tested structure of the MPS-350. This modification is considered non-significant with inconsequential effect.</i>	W/AIVER REQUESTED <i>(based on previous testing)</i>
S3-50 (700C)	<i>Optional test</i>	N/A
3-51 (2000P)	<i>Original laboratory test no. EX-TMA-6. Date of test: 3/1/96. Crash test report no. 06-4995-001. Test 3-51 is requested to be waived for this modification as no changes to the load bearing path of the device have been made. All modifications do not affect the as-tested structure of the MPS-350. This modification is considered non-significant with inconsequential effect.</i>	W/AIVER REQUESTED <i>(based on previous testing)</i>
3-52 (2000P)	<i>Original laboratory test no. MPS-SWED. Date of test: 4/15/02. Crash test report no. 18.04177.01.012. Test 3-52 is requested to be waived for this modification as no changes to the load bearing path of the device have been made. All modifications do not affect the as-tested structure of the MPS-350. This modification is considered non-significant with inconsequential effect.</i>	W/AIVER REQUESTED <i>(based on previous testing)</i>
3-53 (2000P)	<i>Original laboratory test no. MPS-3-53. Date of test: 8/26/02. Crash test report no. 18.04177.01.015. Test 3-53 is requested to be waived for this modification as no changes to the load bearing path of the device have been made. All modifications do not affect the as-tested structure of the MPS-350. This modification is considered non-significant with inconsequential effect.</i>	W/AIVER REQUESTED <i>(based on previous testing)</i>

If you have any questions regarding this matter, feel free to contact me directly at (210) 522-2577, by FAX at (210) 522-3042, or by E-Mail at oliver.harrison@swri.org.

Sincerely,



Oliver Harrison
Research Engineer

APPROVED:



Jenny Ferren
Manager



3617 Cincinnati Ave, Rocklin, CA 95765
(916) 645-8181 Fax No (916) 645-3495

July 21, 2015

Mr. William P. Longstreet
Highway Engineer, Safety Design Team
Office of Safety Technologies, Rm E71-107
Federal Highway Administration
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

Re: MPS-350X[®] Disclosure of Financial Interest, FHWA Review for Eligibility Letter

Mr. Longstreet,

On behalf of Trinity Highway Products, LLC ("THP"), I am responding to your email requesting details of any financial interest that the crash test laboratory has in the MPS 350X[®] system, manufactured by THP.

As noted in THP's request for eligibility for reimbursement under the Federal-aid highway program for this product, the MPS 350X[®] system is a modification of the MPS 350[®] system previously deemed eligible by the FHWA pursuant to HNG-14/CC-34, HNG-14/CC-34A, and HSS-10/CC-34B. The MPS 350[®] system was designed and developed by James Albritton of Exodyne Technologies. The patent holder of record for the MPS 350[®] system is James Albritton. The associated United States Patent Office patent numbers (5,947,452 and 8,714,966) are assigned to Exodyne Technologies and Trinity Industries, Inc, respectively. As a modification of the MPS 350[®] system, the MPS 350X[®] patents and financial interests are the same as the MPS 350[®].

The MPS 350X[®] technology is the commercial embodiment of intellectual property that is protected by patents that are owned by Exodyne Technologies and Trinity Industries, Inc. However, Exodyne Technologies licenses the right to manufacture and sell that commercial embodiment, known as the MPS 350X[®] system to THP.

THP has sponsored certain crash tests of the MPS 350[®] system, which were conducted by Southwest Research Institute ("SwRI"). SwRI is an International Standards Organization ("ISO") 17025 accredited laboratory with American Association for Laboratory Accreditation (A2LA) Mechanical Testing certificate 1110.02. Full-scale crash testing on the MPS 350[®] was performed in accordance with testing criteria, as set forth by the National Cooperative Highway Research Program ("NCHRP") in the NCHRP Report 350 (1993).

Furthermore, SwRI is an independent test lab. As such, SwRI and THP have no common financial interests in or related to the MPS 350X or with regards to one another. Over 20 years ago, SwRI developed the CAT and VAT guardrail end terminal systems which were licensed to Syro Steel Company. Syro Steel Company merged with Trinity companies in 1992. The patents expired on both of these designs in April 2007, and the royalty arrangement between THP and SwRI also ceased. All of the SwRI inventors of those products retired from SwRI several decades ago. As of today, THP simply engages SwRI to perform certain tests and to objectively report the results.

Please advise if further information is required by the FHWA. We look forward to continuing to work with the FHWA in regards to the MPS 350X[®] and other Roadside Safety Hardware.

Sincerely,

Bret Eckert, P.E.
Engineering Applications Manager
Trinity Highway

Office 916-644-9131
bret.eckert@trin.net