U.S. Department
of Transportation
Federal Highway Administration

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

February 18, 2014

In Reply Refer To:
HSST/WZ-328

Mr. Henry A. Ross
Director of Government Relations
Plasticade
7700 N. Austin Avenue
Skokie, Illinois 60077

Dear Mr. Ross:

This letter is in response to your request for the Federal Highway Administration (FHWA) to review a roadside safety system for eligibility for reimbursement under the Federal-aid highway program.

Name of system:	Strongwall ADA Pedestrian Barricade / Strongwall LCD
Type of system:	Longitudinal Channelizing Device and ADA compliant Pedestrian Barricade
Test Level:	MASH Test Level III
Testing conducted by:	E-TECH Testing Services
Date of request:	June 21, 2013
Request completed:	December 14, 2013

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

- Plasticade Strongwall ADA compliant Pedestrian Barricade / Strongwall Longitudinal Channelizing Device at either 32-inch height or 40-inch height.

Based on a review of crash test results submitted by the manufacturer certifying the device described herein meets the crash test and evaluation criteria of the American Association of State Highway and Transportation Officials' Manual for Assessing Safety Hardware (MASH), the device is eligible for reimbursement under the Federal-aid highway program. Eligibility for reimbursement under the Federal-aid highway program does not establish approval or endorsement by the FHWA for any particular purpose or use.

The FHWA, the Department of Transportation, and the United States Government do not endorse products or services and the issuance of a reimbursement eligibility letter is not an endorsement of any product or service.

Requirements
To be found eligible for Federal-aid funding, roadside safety devices should meet the crash test and evaluation criteria contained in the American Association of State Highway and Transportation Officials' Manual for Assessing Safety Hardware (MASH).

Description
The device and supporting documentation are described in the attached form, including your request for waiver of MASH Tests 3-70 and 3-72.

Summary and Standard Provisions
Therefore, the system described and detailed in the attached form is eligible for reimbursement and may be installed under the range of conditions tested.

Please note the following standard provisions that apply to FHWA eligibility letters:

- This finding of eligibility does not cover other structural features of the systems, nor conformity with the Manual on Uniform Traffic Control Devices.
- Any changes that may influence system conformance with MASH will require a new reimbursement eligibility letter.
- Should the FHWA discover that the qualification testing was flawed, that in-service performance reveals safety problems, or that the system is significantly different from the version that was crash tested, we reserve the right to modify or revoke this letter.
- You are expected to supply potential users with sufficient information on design and installation 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 MASH.
- To prevent misunderstanding by others, this letter of eligibility is designated as number WZ-328 and 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 at our office 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. The FHWA does not become involved in issues concerning patent law. Patent issues, if any, are to be resolved by the applicant.

- The Plasticade Strongwall barricades are patented products and considered 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

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:	6/21/2013	(•) New ( ) Resubmission
	Name:	Henry A. Ross	Signature: Henry A Ross
	Company:	Plasticade	
	Address:	7700 N. Austin Avenue, Skokie, IL 60077	
	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
'WZ': Crash Worthy Work Zone Traffic Control Devices	(•) Physical Crash Testing ( ) FEA & V&V Analysis	Plasticade Strongwall ADA Pedestrian Barricade and Longitudinal Channelizing Device	AASHTO MASH	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 AASHTO Manual for Assessing Safety Hardware and that the evaluation results meet the appropriate evaluation criteria in the MASH.

Identification of the individual or organization responsible for the product:

Contact Name:	Henry A. Ross	Same as Submitter ☒
Company Name:	Plasticade	Same as Submitter ☒
Address:	7700 N. Austin Avenue, Skokie, IL 60077	Same as Submitter ☒
Country:	USA	Same as Submitter ☒

PRODUCT DESCRIPTION

New Hardware
Longitudinal Channelizing Device that also meets the requirements of an ADA compliant Pedestrian Barricade

CRASH TESTING

A brief description of each crash test and its result:

Required Test Number	Narrative Description	Evaluation Results
3-70 (1100C)		WAIVER REQUESTED
3-71 (1100C)	impacted a double row at 98.1 km/h at angle of 25 degrees	PASS
3-72 (2270P)		WAIVER REQUESTED

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

Laboratory Name:	E-Tech Testing Services, Inc.	
Laboratory Contact:	John F. LaTurner, P.E.	Same as Submitter ☐
Address:	3617B Cincinnati Avenue, Rocklin, CA 95765	Same as Submitter ☐
Country:	USA	Same as Submitter ☐
Accreditation Certificate Number and Date:		

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

December 13, 2013

Nicholas A. Artimovich, II
Highway Engineer, Safety Design Team
Office of Safety Technologies, Rm E71-322
Federal Highway Administration
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

RE: Draft WZ-328

Dear Sir:

We recently completed testing of Plasticade's Strongwall ADA Pedestrian Barricade/Strongwall Longitudinal Channelizing Barricade using the recommendations in AASHTO's *Manual for Assessing Safety Hardware (MASH).*

As recommended in MASH, longitudinal channelizing devices are tested to determine the behavior of the devices during and after impact with both small 1100C (2425 lb/1100kg) and heavy 2270P (5004 lb/2270 kg) vehicles. The risk to occupants from detached elements, fragments, or other debris is assessed, as well as vehicle instability. A key potential risk factor is windshield deformation or penetration.

Test 90 is designed to evaluate the behavior of the devices during high speed tests, using the 1100C vehicle. This test is recognized as the more critical test by FHWA and, depending on results and device/vehicle geometry, it may be unnecessary to perform Test 91, using the 2270P vehicle. If there is no evidence of vehicle instability or windshield penetration in Test 90, or any belief that these would occur to a pickup truck in a Test 91 situation, a waiver may be requested so that the Test 91 need not be performed. Test 90 was performed with the Strongwall ADA Pedestrian Barricade/Strongwall Longitudinal Channelizing Barricade with the understanding that Test 91 could be waived with appropriate results. This test showed satisfactory results with no apparent vehicle instability or windshield deformation or penetration. Based on the 1100C results and the following analysis of both vehicles' geometry, we request a waiver for Test 91. Here is a summary of the 1100C and 2270P vehicle geometries:

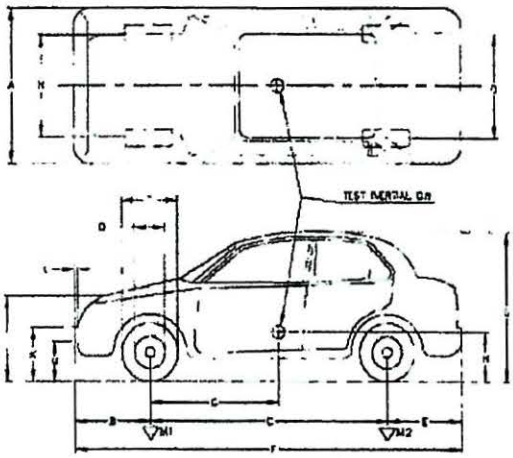
1100C Vehicle Parameters

Test Date	4/23/2013
E-TECH Test #	76-6740-001
Test Designation	MASH 08 Test 3-71
Make	Kia
Model	1100C
Year	2007
VIN	KNADE123776273456
Tire Size:	135/70 R14
Odometer Reading	61,753
Engine Type	4 Cylinder
Engine Size	1.6 LT
Transmission Type	Manual
Pre-Test Damage	NONE
Dummy Type	None
Dummy Seat	N/A
Dummy Mass	0.0 lb 0.0 (kg)

Test Inertial Mass Distribution

	lb	(kg)		lb	(kg)
LF	789.2	358	RF	749 6	340
LR	438.7	199	RR	436.5	198

Vehicle Geometry Dimensions



	in.	(cm)		in.	(cm)
A	63.0	160.0	J	27.6	70.0
B	34.6	88.0	K	22.0	56.0
C	94.5	240.0	L	3.9	10.0
D	56.3	143 0	M	15 7	40.0
E	37.4	95.0	N	57 9	147.0
F	166.5	423 0	O	57.1	145.0
G	34.3	87.0	P	22 0	56 0
H	15.7	40.0	Q	14.0	35.5

Vehicle Mass

	Curb		Test Inertial		Gross Static	
	lb	(kg)	lb	(kg)	lb	(kg)
M1	1503.5	682	1538.8	698	1538.8	698
M2	857 6	389	875 2	397	875.2	397
MT	2361 1	1071	2414.0	1095	2414.0	1095

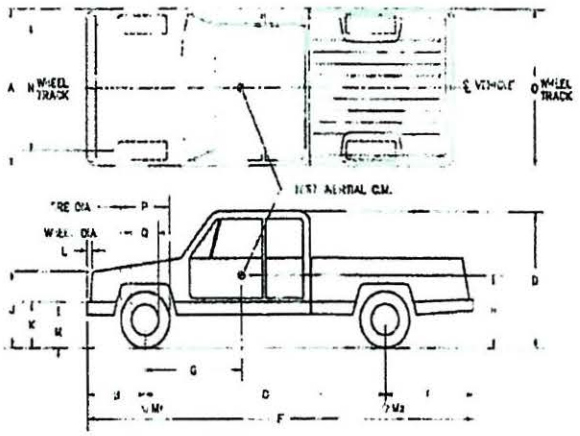
2270P Vehicle Parameters

Test Date	5/20/2011
E-TECH Test #	01-3044-006
Test Designation	MASH 08 Test 3-35
Make	Dodge
Model	2270P
Year	2005
VIN	1D7HA18D05S306873
Tire Size:	265/70 R17
Odometer Reading	196,199
Engine Type	8 Cylinder
Engine Size	5.7 L
Transmission Type	Automatic
Pre-Test Damage	none
Dummy Type	None
Dummy Seat	N/A
Dummy Mass	0.0 lb 0.0 (kg)

Test Inertial Mass Distribution

	lb	(kg)		lb	(kg)
LF	1410 9	640	RF	1384.5	628
LR	1078.0	489	RR	1084.7	492

Vehicle Geometry Dimensions



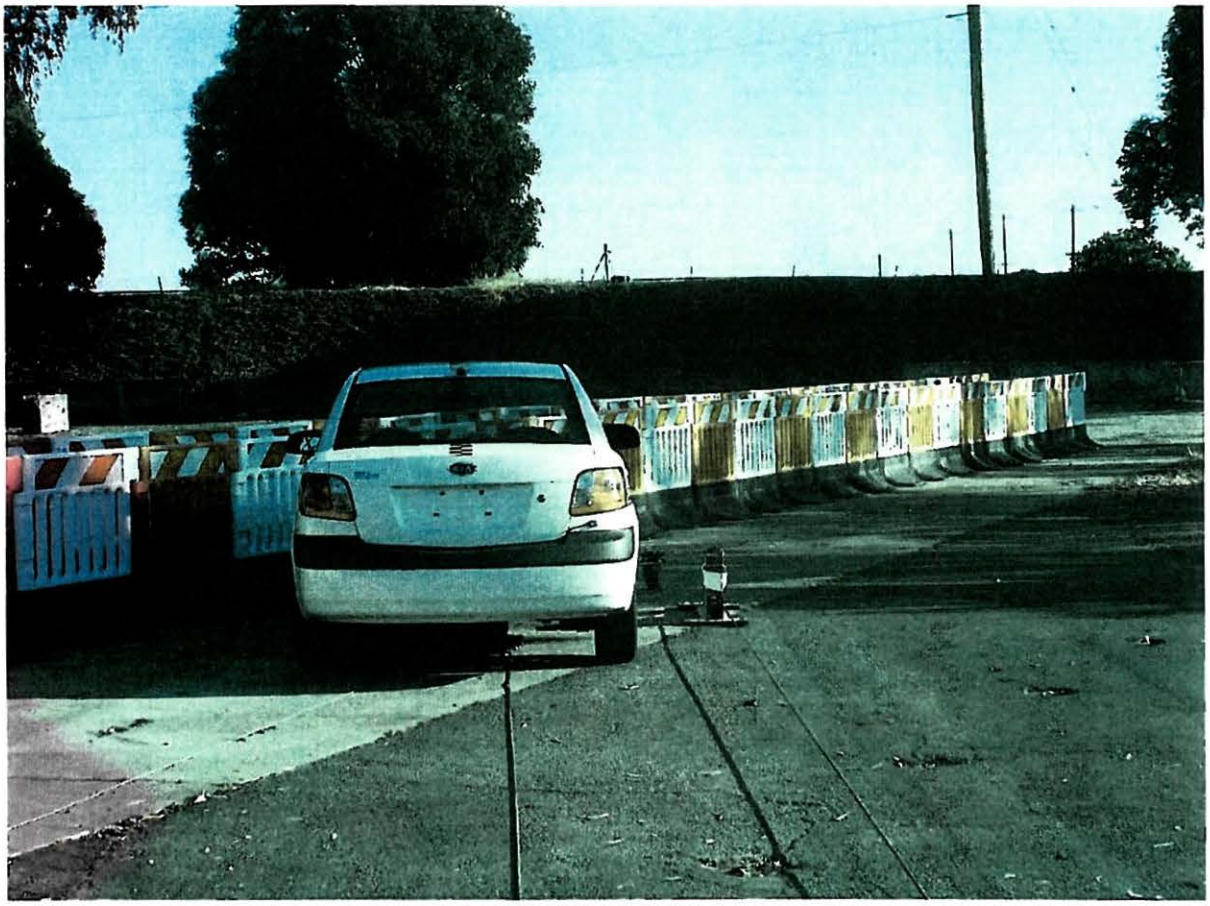
	in.	(cm)		in.	(cm)
A	78.7	200.0	J	41.3	105.0
B	36.2	92.0	K	26.0	66.0
C	140.6	357.0	L	3.9	10.0
D	72.0	183.0	M	15.7	40.0
E	47.2	120.0	N	69.7	177.0
F	225.2	572.0	O	67 7	172.0
G	61 3	155.7	P	30.1	76.5
H	29.5	75.0	Q	17.0	43.2

Vehicle Mass

	Curb		Test Inertial		Gross Static	
	lb	(kg)	lb	(kg)	lb	(kg)
M1	2828.5	1283	2795.4	1268	2795.4	1268
M2	2105.4	955	2162.7	981	2162.7	981
MT	4933.9	2238	4958.1	2249	4958.1	2249

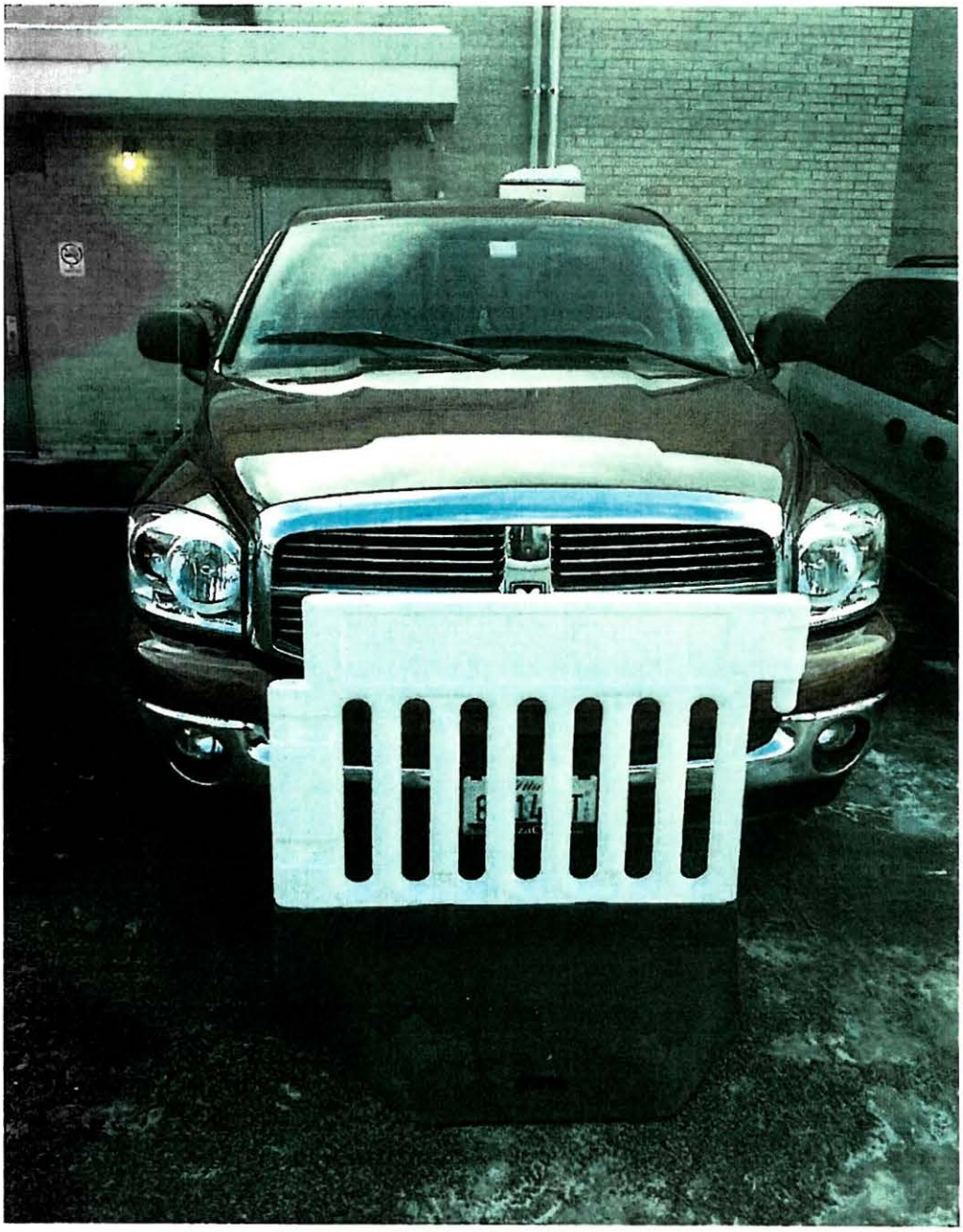
The height of the vehicle hood relative to the height of the test device is critical to determining the potential for the device to contact the windshield. The Strongwall device has a total height of 39.4 inches. The 1100C vehicle used for the high speed small vehicle test had a height from the ground to the forward edge of the hood of 28.0 inches (Measurement J). The relationship of the height of the device to the front of the small vehicle is shown here.

7700 N. Austin Ave., Skokie, IL 60077 www.plasticade.com (800) 772-0355 Fax (847) 966-8074



The corresponding ground to edge of hood measurement (Measurement J) for the 2270P vehicle in a Test 91 scenario is 41.3 inches. In this scenario, the hood edge would be 13.3 inches higher than the 1100C vehicle and would be 1.9 inches higher than the device itself. The relationship of the height of the device to the front of the Test 91 pickup truck is shown here:

PLASTICADE®



7700 N. Austin Ave., Skokie, IL 60077 www.plasticade.com (800) 772-0355 Fax (847) 966-8074

PLASTICADE®

7700 N. Austin Ave., Skokie, IL 60077 www.plasticade.com (800) 772-0355 Fax (847) 966-8074

We conclude that based on the height differential of the pickup truck to the smaller test vehicle and the height relationship to the test article itself, Test 90 was, in fact, the worst case test and it is unlikely that the performance of Test 91 would result in a different outcome.

We request a waiver on Test 91 and issuance of WZ-328.

Thank you.

Sincerely,

PLASTICADE

Henry A. Ross, Director of Government Relations

7700 N. Austin Ave., Skokie, IL 60077 www.plasticade.com (800) 772-0355 Fax (847) 966-8074

June 21, 2013

Mr. Michael S. Griffith, Director
Office of Safety Technologies
Federal Highway Administration
1200 New Jersey Avenue, S.E.
Washington, DC 20590

Dear Sir:

Enclosed is our request for federal-aid reimbursement eligibility for the Plasticade Strongwall ADA Pedestrian Barricade and Longitudinal Channelizing Device. This device was successfully crash tested by E-TECH Testing Services, Inc. on May 14, 2013. A copy of the test report and a DVD with various videos and pictures of the device and the testing process are also enclosed.
The device tested has a panel height that measures 40 inches. We request that our WZ letter of eligibility specifically allow another panel height of 32 inches, consistent with the devices shown in the enclosed literature. As you can see, both panels use the same weighted base.
Please let me know if any additional information is required.

Sincerely.

PLASTICADE

Henry A. Ross
Director, Government Relations

7700 N. Austin Ave., Skokie, IL 60077 www.plasticade.com (800) 772-0355 Fax (847) 966-8074