



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

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

December 18, 2013

In Reply Refer To:  
HSST/WZ-324

Mr. Chris Goode  
Vice President of Sales  
Bone Safety Signs LLC  
6450 Industrial Way  
Alpharetta, GA 30004

Dear Mr. Goode:

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

Name of system:	SZ 412 Sign Stand with modified mast
Type of system:	X-Footprint portable sign stand
Test Level:	NCHRP Report 350 Test Level 3
Testing conducted by:	KARCO Engineering LLC
Date of request:	July 9, 2013
Date initially acknowledged:	August 5, 2013
Date of completed package:	December 13, 2013

### **Decision**

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

- SZ 412 X-footprint portable Sign Stand with modified mast

Based on a review of component crash test results submitted by the manufacturer certifying the device described herein meets the crash test and evaluation criteria of the National Cooperative Highway Research Program (NCHRP) Report 350, 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.

FHWA:HSST:NArtimovich:sf:x61331:12/16/13

File: s://directory folder/HSST/nartimovich/WZ324.docx

cc: HSST (Reader, HSA; Chron File, HSST; NArtimovich, HSST), BFouch, HSST

**Requirements**

To be found eligible for Federal-aid funding, roadside safety devices should meet the crash test and evaluation criteria contained in the NCHRP Report 350 or the American Association of State Highway and Transportation Officials' Manual for Assessing Safety Hardware (MASH).

**Description**

The device is described in the attached form and attachments. The original SZ 412 stand was covered in FHWA Eligibility/Acceptance Letter WZ-67 dated January 6, 2001. The modification consisted of replacing a single-piece mast with a two-piece mast. Bogie vehicle testing of the original and the modified sign stands showed that both mast designs deformed around the front of the test vehicle in a similar manner.

**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 NCHRP Report 350 criteria 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 crash test and evaluation criteria of the NCHRP Report 350.
- To prevent misunderstanding by others, this letter of eligibility is designated as number WZ-324 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.

- Bone Safety Signs stands 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  
Director, Office of Safety Technologies  
Office of Safety

Enclosures



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Sincerely yours,

A handwritten signature in blue ink that reads "Michael S. Griffith". The signature is written in a cursive style with a large, stylized "M" and "G".

Michael S. Griffith  
Director, Office of Safety Technologies  
Office of Safety

Enclosures

## Request for Federal Aid Reimbursement Eligibility Of Highway Safety Hardware

<b>Submitter</b>	Date of Request:	7/9/2013	<input checked="" type="radio"/> New <input type="radio"/> Resubmission
	Name:	CHRIS GOODE	Signature:
	Company:	BONE SAFETY SIGNS, LLC	
	Address:	6450 INDUSTRIAL WAY, ALPHARETTA, GA 30004	
	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	<input checked="" type="radio"/> Physical Crash Testing <input type="radio"/> FEA & V&V Analysis	SZ-412-T	NCHRP Report 350	TL2

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:	CHRIS GOODE	Same as Submitter <input checked="" type="checkbox"/>
Company Name:	BONE SAFETY SIGNS, LLC	Same as Submitter <input checked="" type="checkbox"/>
Address:	6450 INDUSTRIAL WAY, ALPHARETTA, GA 30004	Same as Submitter <input checked="" type="checkbox"/>
Country:	USA	Same as Submitter <input checked="" type="checkbox"/>

### PRODUCT DESCRIPTION

Modification to Existing Hardware Non-Significant - Effect is positive or Inconsequential

### CRASH TESTING

A brief description of each crash test and its result:

Required Test Number	Narrative Description	Evaluation Results
2-70 (820C)		
S2-70 (700C)		
2-71 (820C)		
S2-71 (700C)	Two bogey sled impact tests for verification & validation. See attached letter.	PASS

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.):

Laboratory Name:	KARCO Engineering, INC		
Laboratory Contact:	Frank D. Richardson	Same as Submitter	<input type="checkbox"/>
Address:	9270 Holly Rd, Adelanto, CA 92301	Same as Submitter	<input type="checkbox"/>
Country:	USA	Same as Submitter	<input type="checkbox"/>
Accreditation Certificate Number and Date:	05/08/13 See Attached		

## 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
WZ-324	August 8, 2013	N/A	X-Footprint Sign Stand Work Zone Sign Tall Stand



Mr. Nick Artimovich  
FHWA – HAS -10  
400 Seventh Street, SW  
Washington, DC 20590

Mr. Artimovich,

We respectfully request The Federal Highway Administration review for approval our X Foot print sign stand in consideration for a Safety Acceptance Letter.

The Sign Stand is a variation of two FHWA approved stands, the SZ-460 found in letter WZ-67 along with the SZ-412-2S found in WZ-242, along with other industry standard sign stands known as X foot print and or compact sign stands for exclusive use in displaying roll up signs up to 48” diamond or 16 square feet or smaller, of standard configuration.

Based on a review of comparable subject portable sign stands to prior crash test results as detailed in the WZ Letters previously mentioned along with the attached Karco Engineering letter referencing the NEW TEST performance of the two piece mast verses the one piece mast we are convinced that using the two piece mast on the SZ 412 series X foot print stand verses the single piece mast will not change the strength or integrity of the unit as a whole.

It will allow for better storage, ease of shipping and handling while maintaining the same high quality standards for safety on our roadways while meeting the designed product class.

Also attached you will find the application, drawings and the Karco Engineering Data letter.

Please feel free to contact me at any time with questions you may have.

Regards

*Chris Goode*

Chris Goode  
Vice President of Sales  
Bone Safety Signs LLC  
352-598-5308  
chris@bonesafety.com