



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

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

May 6, 2014

In Reply Refer To:  
HSST/WZ-333

Mr. Troy Tapley  
MDI Worldwide  
38271 West Twelve Mile Road  
Farmington Hills, Michigan 48331

Dear Mr. Tapley:

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:       | 4814SL Screw Lock Sign Stand           |
| Type of system:       | Compact X-Footprint Roll Up Sign Stand |
| Test Level:           | NCHRP Report 350 Test Level 3          |
| Testing conducted by: | Texas Transportation Institute         |
| Date of request:      | 2/14/2014                              |

#### **Decision**

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

- 4814 SL Screw Lock compact X-footprint stand for Roll Up signs

Based on a review of crash test results 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.

#### **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**

This stand qualifies as a “Compact Sign Stand” that does not require additional crash testing for certain modifications. The modifications to the crash-tested device and supporting documentation are described in the attached form.

**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-333 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 MDI sign 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.

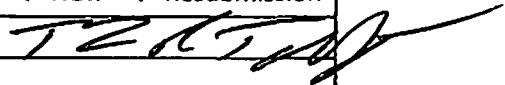
Sincerely yours,

A handwritten signature in blue ink, reading "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: | February 14, 2014                                                    | <input checked="" type="radio"/> New <input type="radio"/> Resubmission                        |
|                  | Name:            | Troy Tapley                                                          | Signature:  |
|                  | Company:         | MDI Worldwide                                                        |                                                                                                |
|                  | Address:         | 38271 W. Twelve Mile Road, Farmington Hills, Michigan 48331          |                                                                                                |
|                  | Country:         | United States                                                        |                                                                                                |
|                  | To:              | Michael S. Griffith, Director<br>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 type="radio"/> Physical Crash Testing<br><input type="radio"/> FEA & V&V Analysis | 4814SL                | 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: | Troy Tapley                                                 | Same as Submitter <input checked="" type="checkbox"/> |
| Company Name: | MDI Worldwide                                               | Same as Submitter <input checked="" type="checkbox"/> |
| Address:      | 38271 W. Twelve Mile Road, Farmington Hills, Michigan 48331 | Same as Submitter <input checked="" type="checkbox"/> |
| Country:      | United States                                               | Same as Submitter <input checked="" type="checkbox"/> |

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| Company Name: | MDI Worldwide                                               | Same as Submitter <input checked="" type="checkbox"/> |
| Address:      | 38271 W. Twelve Mile Road, Farmington Hills, Michigan 48331 | Same as Submitter <input checked="" type="checkbox"/> |
| Country:      | United States                                               | Same as Submitter <input checked="" type="checkbox"/> |

### PRODUCT DESCRIPTION

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

**Product Description of 4814SL**

The 4814SL Sign Stands are a variation of many MDI's and industry standard sign stands known as "Compact Sign Stands" for exclusive use in displaying roll up signs up to 48" diamond shape or 16 sq. ft. [1.5 sq. meters]. Further description:

The 4814SL Sign Stands are portable, compact sign stands that are manufactured with two vertically mounted steel coil springs to support vinyl roll up signs with an area not to exceed 16 sq. feet [1.5 sq. meters]. The four legs of the stand are constructed of 1.25 in x 1.25 in x 0.10 in [32 mm x 32 mm x 2.5 mm] square aluminum tubing or 1.00 in x 1.00 in x 0.06 in [25.4 mm x 25.4 mm x 1.5 mm] square steel tubing. The coil springs attach the 0.19 inch [5 mm] thick, coated steel base to the upright. The upright, consisting of a 1.25 in [32 mm] square tube supports and holds a screw lock bracket. The 4814SL Sign Stands are designed to hold vinyl roll up signs ranging from 12" to 18" above grade when the stands are fully assembled.

The overall height of the sign stand, with flags is 110 inches [2794 mm] and 86 inches [2184 mm] without the flags. The bottom of the sign shall not exceed 18 inches [457 mm] above grade. The total weight of the sign stand is 31.0 lbs [14.0 kg] with aluminum legs, which includes the stand of 23.0 lbs [10.4 kg], the sign and flags of 8.0 lbs [3.6 kg]. The total weight of the sign stand is 32.0 lbs [14.5 kg] with steel legs, which includes the stand of 24.0 lbs [10.9 kg], the sign and flags of 8.0 lbs [3.6 kg] respectively.

**CRASH TESTING**

A brief description of each crash test and its result:

| Required Test Number | Narrative Description | Evaluation Results |
|----------------------|-----------------------|--------------------|
| 3-70 (820C)          |                       |                    |
| S3-70 (700C)         |                       |                    |
| 3-71 (820C)          |                       | WAIVER REQUESTED   |
| S3-71 (700C)         |                       |                    |

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:                           |  |                                            |
| Laboratory Contact:                        |  | Same as Submitter <input type="checkbox"/> |
| Address:                                   |  | Same as Submitter <input type="checkbox"/> |
| Country:                                   |  | Same as Submitter <input type="checkbox"/> |
| 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                                                            |
| WZ-333             | April 21, 2014 |             | 4814SL Sign Stand<br>Compact X-Footprint Sign Stand<br>Roll Up signs |



**Request for Federal Aid Reimbursement Eligibility  
of Highway Safety Hardware**

**February 21, 2013**

**By:**

**Troy Tapley**

**MDI Worldwide**

**38271 W. Twelve Mile Rd.**

**Farmington Hills, MI 48331**

To Whom It May Concern:

I request the following devices be considered eligible for reimbursement under the Federal-Aid Highway program.

System Type: WZ: Crash Worthy Work Zone Traffic Control Devices

Device Name/Variant: 4814SL (Screw Lock)

Testing Criterion: NCHRP Report 350

Test Level: 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 National Cooperative Highway Research Program (NCHRP) Report 350 and that the test/evaluation results meet the appropriate evaluation criteria in the NCHRP.

Contact Name: Troy Tapley

Company Name: MDI Worldwide

City/State/Zip: Farmington Hills, MI 48331

Country: USA

**Product Description of 4814SL**

The 4814SL Sign Stands are a variation of many MDI's and industry standard sign stands known as "Compact Sign Stands" for exclusive use in displaying roll up signs up to 48" diamond shape or 16 sq. ft. [1.5 sq. meters].

**Further description:**

The 4814SL Sign Stands are portable, compact sign stands that are manufactured with two vertically mounted steel coil springs to support vinyl roll up signs with an area not to exceed 16 sq. feet [1.5 sq. meters]. The four legs of the stand are constructed of 1.25 in x 1.25 in x 0.10 in [32 mm x 32 mm x 2.5 mm] square aluminum tubing or 1.00 in x 1.00 in x 0.06 in [25.4 mm x 25.4 mm x 1.5 mm] square steel tubing. The coil springs attach the 0.19 inch [5 mm] thick, coated steel base to the upright. The upright, consisting of a 1.25 in [32 mm] square tube supports and holds a screw lock bracket. The 4814SL Sign Stands are designed to hold vinyl roll up signs ranging from 12" to 18" above grade when the stands are fully assembled.

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**Modifications from previous accepted Compact Sign Stands (See previously excepted MDI Compact Sign Stands below)**

The 4814SL Sign Stands functions the same as MDI's current Compact Sign Stands and the industry standard sign stands known as "Compact Sign Stands" as recorded in FHWA HAS-10/WZ-85 with only a few changes. The changes are listed below.

1. We ask for acceptance of all shapes and sizes suggested within the WZ-85 letter (Roll Up Signs not to exceed 16 sq. ft).
2. We ask for acceptance of variable footprint sizes (not to exceed 62" x 88" [1575 mm x 2235 mm]).
3. We ask for acceptance of the legs to be constructed with steel or aluminum. In addition, we ask for acceptance for the legs to be telescoping and non-telescoping.

**Reason for Seeking Approval for Modification**

When comparing MDI's current Compact Sign stands and reviewing the proposed changes, we concur the changes will not affect the results of the stand due to the following reasons:

1. Although the footprints have a variable range, we concur the sign stand would perform in the same predictable manner by having the car pass over the base and legs.
2. Although the legs could be constructed with different materials and be telescoping or non-telescoping, we concur the sign stand would perform in the same predictable manner.
3. Per the WZ-85 letter, we concur the 4814SL Sign Stand qualifies as a "Compact Sign Stand" requiring no additional crash testing. Reference Q&A #2:

"Compact Sign Stands are "X-Footprint" sign stands of steel or aluminum with a short mast. The mounting height of 1220 mm x 1220 mm (48 x 48 in) diamond sign is 300 mm to 450 mm (12 to 18 in) only. A number of manufactures have crash tested compact sign stands. These stands performed well because there are no metal elements at a height that can impact the windshield during a crash."

**Previously excepted MDI Compact Sign Stands and Memorandum HAS-10/WZ-85**

HAS-10/WZ-85 Memorandum: Design and Materials of Crashworthy Work Zone Traffic Control Devices; Portable Sign Stands, Type III Barricades, and Category IV Devices

WZ-3 4814DLK & 4814HDK

WZ-3 50SM (successfully tested by TTI: test number 453580-1)

WZ-20 3612DLK

WZ-314 4814CAM

Request Prepared By: TRAY TAPLEY

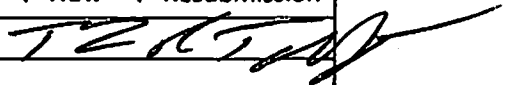
Date: 2/14/14

Signature: TRAY TAPLEY

Title: ENGINEER



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|                  |                  |                                                                      |                                                                                                |
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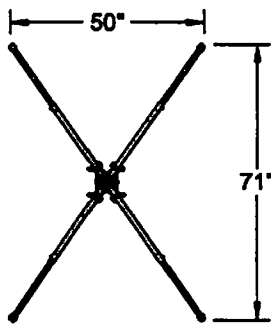
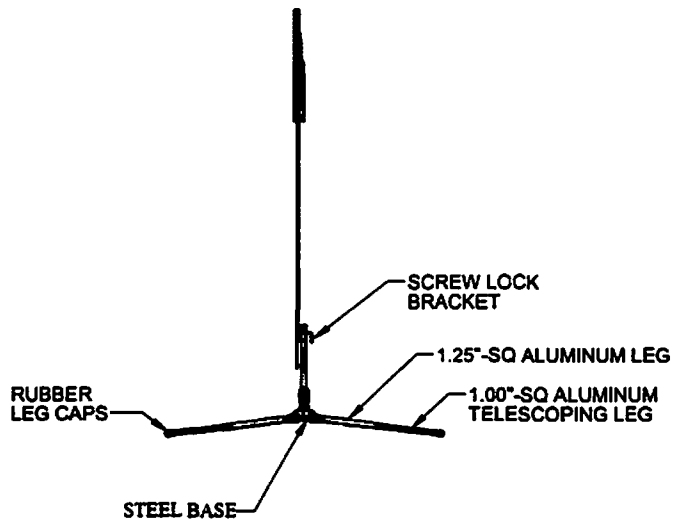
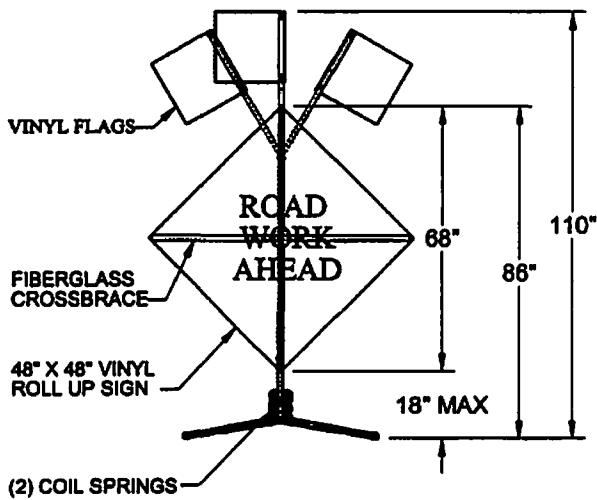
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|                                                      | <input type="radio"/> FEA & V&V Analysis     |                       |                   |            |

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| Company Name: | MDI Worldwide                                               | Same as Submitter <input checked="" type="checkbox"/> |
| Address:      | 38271 W. Twelve Mile Road, Farmington Hills, Michigan 48331 | Same as Submitter <input checked="" type="checkbox"/> |
| Country:      | United States                                               | Same as Submitter <input checked="" type="checkbox"/> |

# 4814SL SCHEMATIC DRAWING ROLL UP SIGN



NOTE:  
FOOTPRINT NOT TO  
EXCEED 62" X 88"



## 4814SL WEIGHT

|                           |           |
|---------------------------|-----------|
| ROLL UP SIGN              | 8.0 lbs.  |
| SIGN STAND<br>W/ALUM LEGS | 23.0 lbs. |
| W/STEEL LEGS              | 24.0 lbs. |
| TOTAL                     | 31.0 lbs. |

MDI Traffic Control Products, 38271 West 12 Mile Road, Farmington Hills, MI 48331-1041 800-521-6776

ZA-07294

ZA-07294

ZA-07294