



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

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

April 3, 2014

In Reply Refer To:
HSST/WZ-322

Mr. Douglas Micelli
Protection Services Inc.
655 Lucknow Road
Harrisburg Pennsylvania 17110

Dear Mr. Micelli:

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: | 42 Inch Tall Cone |
| Type of system: | Traffic Cone Channelizer |
| Test Level: | NCHRP Report 350 Test Level 3 |
| Component Testing by: | Washington Laboratories, Ltd. (WLL) |
| Date of request: | January 21, 2013 |
| Date initially acknowledged: | February 21, 2013 |
| Date of completed package: | November 19, 2013 |

Decision

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

- 42 Inch Tall Traffic Channelizer Cone

Based on a review of crash test results for a similar product 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.

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 and supporting documentation are described in the attached form. The cone is similar to the Traffix Devices Looper Cone which was covered in FHWA Letter WZ-189. You have received written permission from Traffix Devices Inc., to use their full scale crash tests to support your certification that the Protection Services 42-inch tall cone meets the crash test criteria of NCHRP Report 350.

The two cone designs are comparable with the exception of the warning light attachment hole. The Traffix Devices Looper Cone was crash tested and resulted in a cracked windshield when the light detached and impacted the test vehicle. Washington Laboratories, Ltd., conducted quasi-static pull tests to assess the strength of the warning light attachment hole for both the Traffix Devices Looper Cone and the Protection Services Traffic Cone Channelizer. The WLL test report showed that the Protection Services Traffic Cone Channelizer had a greater capacity to retain the warning light than the crash tested cone. Therefore windshield damage is less likely when warning lights are used on the Protection Services Traffic Cone Channelizer.

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-322 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 Protection Services Cones 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 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

| | | | |
|------------------|-------------------------|--|---|
| Submitter | Date of Request: | January 21, 2013 | <input checked="" type="radio"/> New <input type="radio"/> Resubmission |
| | Name: | Douglas Miceli | |
| | Company: | Protection Services Inc. | |
| | Address: | 635 Lucknow Rd., Harrisburg, Pa. 17110 | |
| | Country: | United States of America | |
| | 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.

[Help](#)

| System Type | Submission Type | Device Name / Variant | Testing Criterion | Test Level |
|------------------------------|---|---|-------------------|------------|
| "WZ": Crash Worthy Work Zone | <input checked="" type="radio"/> Physical Crash Testing <input type="radio"/> FEA & V&V Analysis | 42" Tall Cone / = to Traffic model "Looper" WZ189 | 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: | Douglas Miceli | Same as Submitter <input checked="" type="checkbox"/> |
| Company Name: | Protection Services Inc. | Same as Submitter <input checked="" type="checkbox"/> |
| Address: | 635 Lucknow Rd., Harrisburg, Pa. 17110 | Same as Submitter <input checked="" type="checkbox"/> |
| Country: | United States of America | Same as Submitter <input checked="" type="checkbox"/> |

PRODUCT DESCRIPTION

| |
|--|
| New Hardware |
| 42 inch tall cone, made of low density polyethylene with a 30 pound base, tapered from 7.75" to 4" at top, with light weighing 3 pounds or less including batteries, attached to the top using a 4 1/8" long 1/2 inch diameter bolt and not (with vandal resistant washer) = to the Traffic Looper 42" tall cone |

CRASH TESTING

A brief description of each crash test and its result:

| Required Test Number | Narrative Description | Evaluation Results |
|----------------------|---|--------------------|
| 2-70 (820C) | Please refer to HSA-10/WZ - 189 Traffic Looper cone | PASS |
| S2-70 (700C) | Please refer to HSA-10/WZ - 189 Traffic Looper cone | PASS |
| 2-71 (820C) | Please refer to HSA-10/WZ - 189 Traffic Looper cone | PASS |
| S2-71 (700C) | Please refer to HSA-10/WZ - 189 Traffic Looper cone | PASS |

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: | | |
| 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 |
| | | | |

Douglas Miceli

Douglas Miceli
 Technical Services Manager
 Protection Services Inc.



Environmental Test Report

For the

Protection Services, Inc.

TRAFFIC CONE (P/N C-42)

WLL Report 13241-01 Rev. 0

November 19, 2013

Prepared for:

PROTECTION SERVICES, INC.

635 LUCKNOW ROAD

HARRISBURG, PA 17110

Prepared by:

WASHINGTON LABORATORIES, LTD.
7560 LINDBERGH DRIVE
GAITHERSBURG, MARYLAND 20879



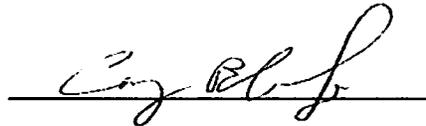
Testing Cert AT-1448

Environmental Test Report
for the

PROTECTION SERVICES, INC.
TRAFFIC CONE (P/N C-42)

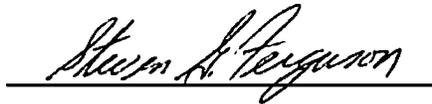
WLL Report 13241-01 Rev. 0
November 19, 2013

Prepared by:



Corey Blackford
Compliance Technician

Reviewed by:



Steve Ferguson
Executive Vice President

Abstract

This report has been prepared on behalf of Protection Services, Inc. to document the findings of the environmental testing performed on the Protection Services, Inc. Traffic Cone (P/N C-42).

This Environmental Test Report provides the test results from testing of the Protection Services, Inc. Traffic Cone (P/N C-42). The test procedure was developed by Washington Laboratories, Ltd based on requested testing provided by Protection Services, Inc. This test report provides the test data. The report revision dates and test results are summarized below.

| Report Revision Number | Revision Date | Revision Summary |
|------------------------|-------------------|------------------|
| Rev. 0 | November 19, 2013 | Initial release |

| Test Method | Testing Date |
|------------------------------|--------------|
| Bolt Pull-Through Force Test | 11/14/2013 |

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1 Administrative

Washington Laboratories, Limited was contracted by Protection Services, Inc. to perform testing on the Traffic Cone (P/N C-42).

This document describes the test setups, test methods, required test equipment, and the test limit criteria used to perform compliance testing of the Protection Services, Inc., Traffic Cone (P/N C-42).

1.1 Customer & Customer Representative

Protection Services, Inc.

Doug Miceli

635 Lucknow Road

Harrisburg, PA 17110

1.2 Test Specimen Identification

The traffic cone (part number C-42) is an orange marker used to divert and direct traffic. The unit will be referred to as the Equipment Under Test (EUT) for the remainder of this report.

1.3 Manufacturer

Protection Services, Inc.

635 Lucknow Road

Harrisburg, PA 17110

1.4 Requirements Summary

The test goals were defined by Protection Services, Inc. to assess the force required to cause bolt retention failure of the EUT compared to a like model with existing approval. The test method is described in the test results summary.

1.5 References

- Washington Laboratories Quotation No. 67760.
- Washington Laboratories Quality Assurance Manual
- ISO 10012-1 Quality Assurance Requirements for Measuring Equipment, dated 1 May 1993

1.6 Test Equipment and Instrumentation

All instrumentation, measuring, and test equipment used for measurement in the performance of this test program were calibrated in accordance with ISO 10012-1. Standards used in performing all calibrations are traceable to the National Institute of Standards and Technology (NIST) by report number and date. When no national standards exist, the standards are traceable to international standards or the basis for calibration is otherwise documented. Table 1 lists Washington Laboratories test equipment used for the environmental testing.

Table 1: Washington Laboratories Environmental Test Equipment List

| WLL Environmental Testing | | Test Date(s): 11/14/2013 | |
|---------------------------|--------------------|--------------------------|--------------|
| Asset # | Manufacturer/Model | Description | Cal Due Date |
| 00402 | ED&D PFI-1000 | Digital Force Gauge | 7/10/2014 |
| 00300 | Chicago | Digital Calipers | 11/27/2014 |

1.7 Test Results

Table 2 provides a summary of the test results.

Table 2: Test Results Summary

| Test Method | Testing Date |
|------------------------------|--------------|
| Bolt Pull-Through Force Test | 11/14/2013 |

2 Procedure Deviation

No deviations from the test procedures are noted.

3 Environmental Testing

Environmental testing was carried per test conditions, equipment, accuracy, tolerances, and levels as required to meet the test goals specified by Protection Services, Inc.

3.1 Bolt Pull-Through Force Test

The purpose of this test is to determine the linear force required to pull a standard bolt through the hole on a traffic cone designed to secure a warning light. The object was to determine if the Protection Service Inc. Traffic Cone, part number C-42, required an equal or greater force to pull the bolt through when compared to a similar product, the Traffix Looper-Cone (an approved unit).

The test configuration consisted of three major parts; the traffic cone under test, the cone restraint, and the force gauge assembly (consisting of the force gauge, lever arm, and linear gauge sled). The cone restraint was set at a height just below the bolt hole location on the test cone, with adequate space to allow the cone to flex or distort around the bolt. The traffic cone was then placed behind the restraint, the test bolt placed in the traffic cone, the lever arm attached to the test bolt, and the force gauge attached to the lever arm. The force gauge was then installed on the linear gauge sled, which allowed for consistent force application speed and ensured the force gauge was kept on a linear path during testing. The lever arm had a ratio of 1:6.67.

The gauge sled was moved by turning a nut on the all-thread sled to obtain a constant force without sharp or sudden movement.

The force required to attain complete bolt pull-through with the Traffix Looper-Cone was approximately 1260N (283lbf). Complete bolt pull-through was not attained with the Protection Services Inc C-42 cone, due to the force required exceeding the capability of the force gauge to measure. The highest recorded force was 2850N (640lbf).

Figure 1 shows the test configuration, and Figure 2 - Figure 8 show test results. Note that in Figure 8, the C-42 was exhibiting distortion at the edges of the bolt connection node but "pull-through" did not occur.



Figure 1: Bolt Pull-Through Force Test Configuration

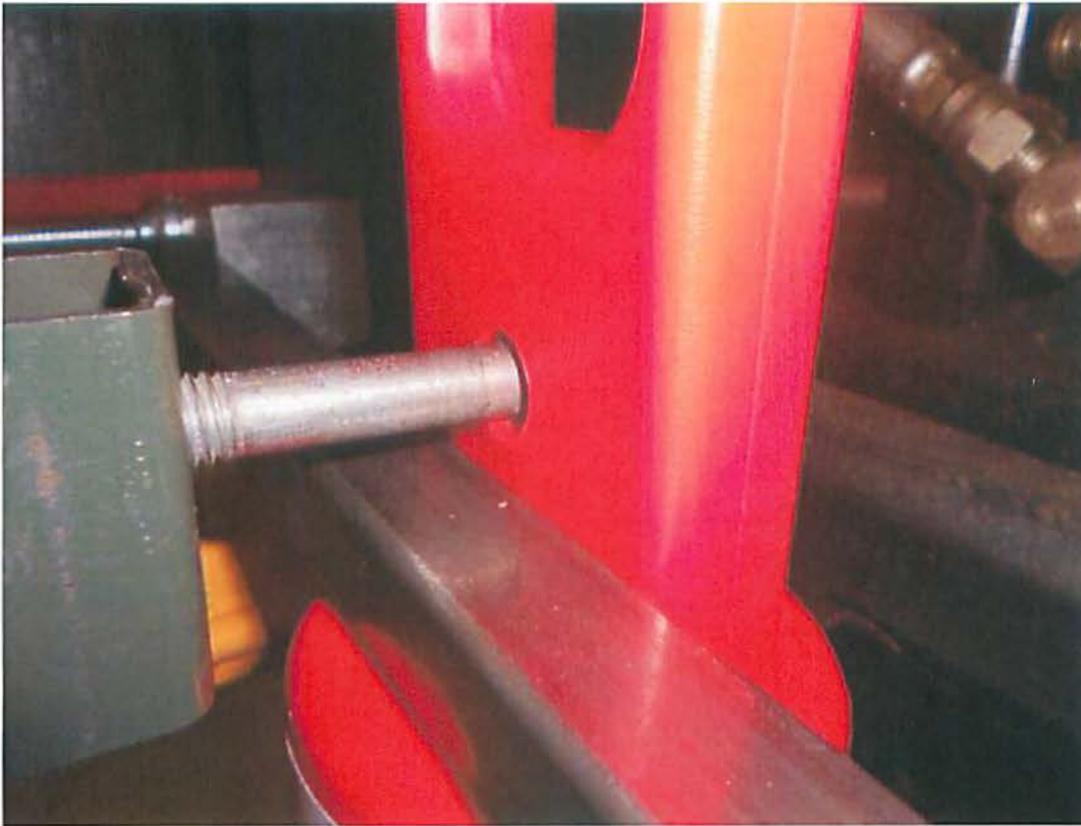


Figure 2: Looper-Cone at ~367N



Figure 3: Looper-Cone at ~934N



Figure 4: Looper-Cone at ~1200N



Figure 5: Looper-Cone Following Bolt Pull-Through

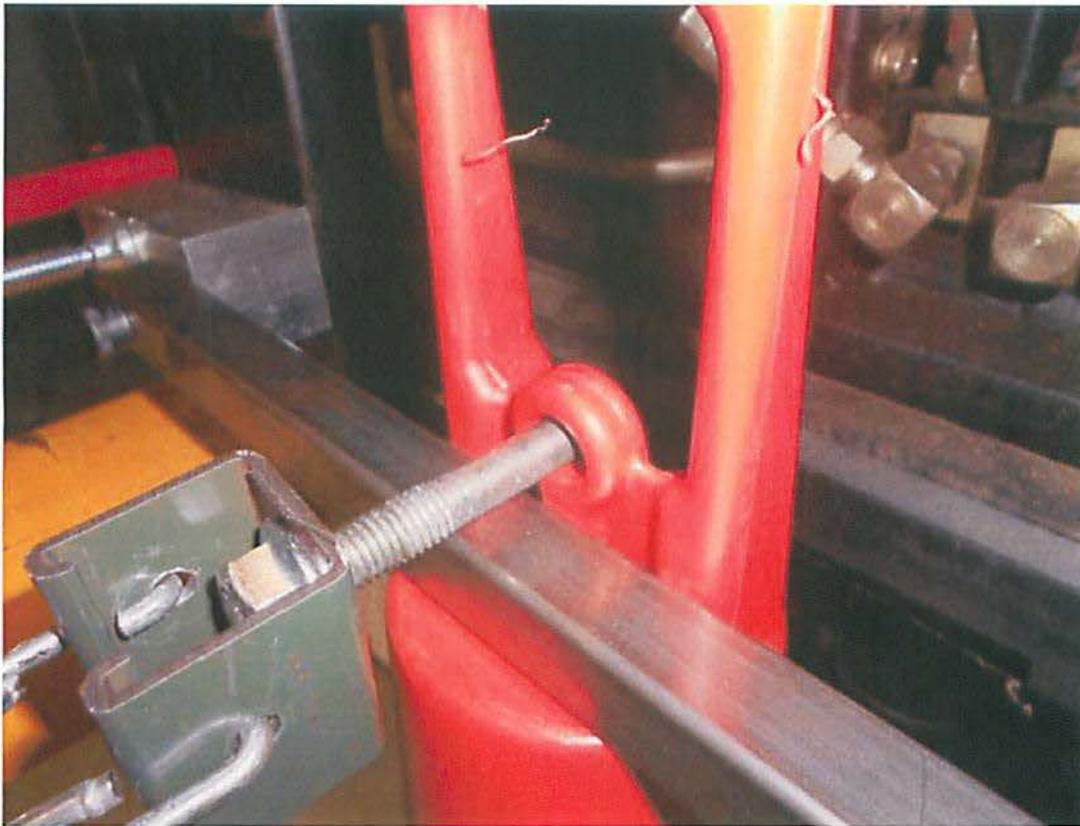


Figure 6: C-42 at ~693N

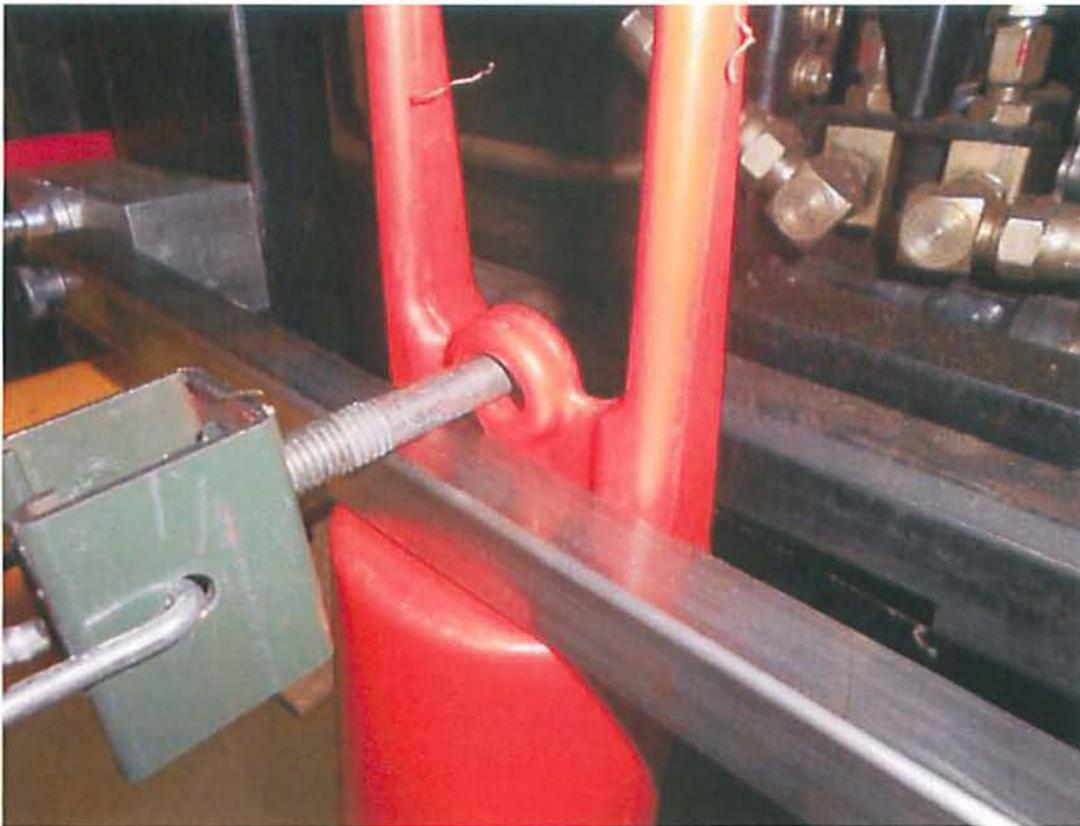


Figure 7: C-42 at ~1754N

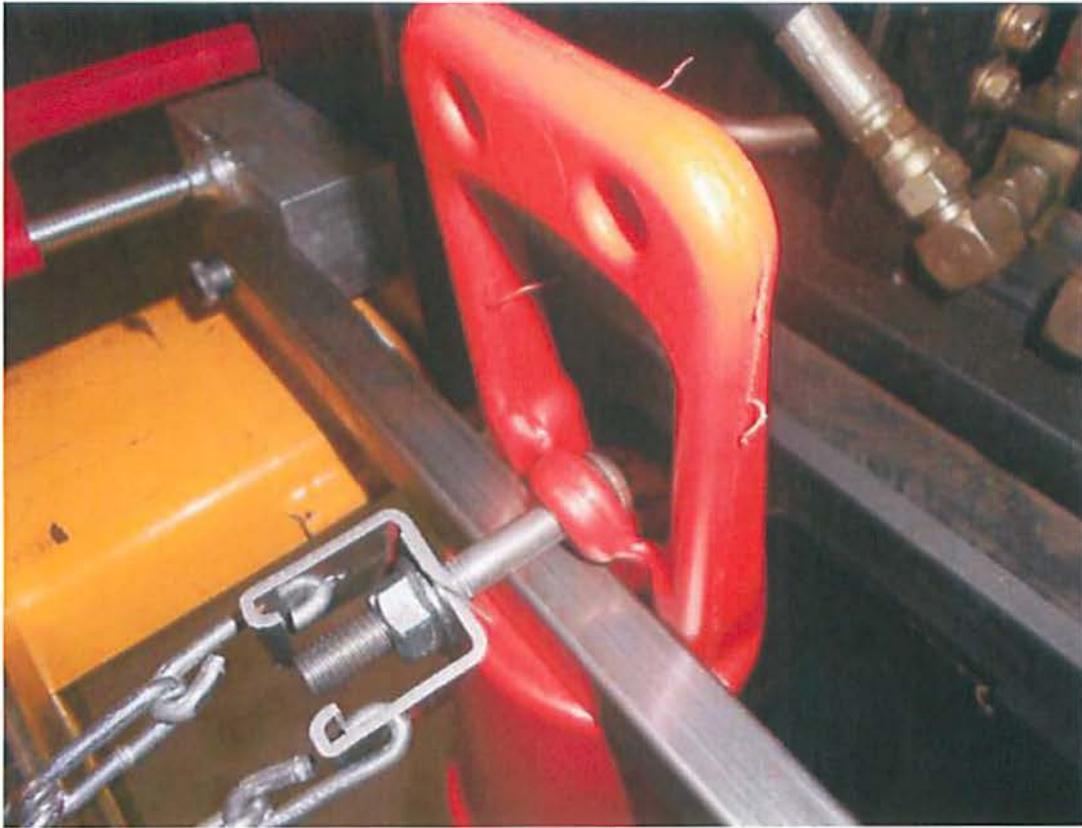


Figure 8: C-42 at ~2850N



11/8/12

Ref. Extending permission for Protection Services, Inc. to use TrafFix Devices, Inc Accepted Category II, Tall Cone with attached standard Barricade Light Test result, (WZ-189)

Dear Mr. Artimovich

I hope you are doing well.

Please consider this letter as recognition that TrafFix Devices considers the Protection Services, Inc. Tall Cone and standard lightweight barricade light as comparable products to the TrafFix Devices Looper Cone and barricade light items tested and accepted to the NCHRP-350 Standard as a Category II Device per WZ-189.

Further, TrafFix Devices, Inc. extends permission to Protection Services, Inc. to extrapolate from our test results and be given the same recognition and acceptance for their comparable items.

Please feel free to contact me if you have any questions.

Thank you for your assistance with this matter.

Jan Miller

Business Development Manager

160 Ave. La Pata
San Clemente, California 92673
(949) 361-5663
FAX (949) 361-9205
www.traffixdevices.com

From: [Doug Miceli](#)
To: ["jmiller@traffixdevices.com"](mailto:jmiller@traffixdevices.com)
Cc: [Doug Danko](#)
Subject: Protection Services request for permission letter for FHWA
Date: Friday, November 02, 2012 4:14:09 PM

Hello Jan,

What we need specifically is a letter (on company letterhead) stating that Traffix has extended permission to Protection Services Inc. for the purpose of "piggy-backing" off the NCHRP350 category II device testing submitted for the Looper Cone – 42" w/standard barricade light attached and approved under acceptance letter WZ-189 for the sole purpose of Protection Services Inc. reference to said testing in their submission for approval of PSI's 42" – Cone w/lightweight barricade light as a similar category II device meeting the NCHRP350 crashworthiness requirements.

It is our hope that FHWA will agree that the two devices are similar in function enough to waive our requirement for independent lab testing and grant us category II device acceptance for our 42" – Cone.

We appreciate very much Traffix willingness to help us, and look forward to receiving your letter granting us permission to reference your test results.

Have a great weekend.

Doug Miceli



Technical Services Manager

Protection Services

ph.717.257.4228

fax 717.236.1281

www.protectionservices.com



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

February 8, 2005

400 Seventh St., S.W.
Washington, D.C. 20590

In Reply Refer To: HSA-10/WZ-189

Mr. Felipe Almanza
TraFFix Devices
220 Calle Pinteroesco
San Clemente, California 92672

Dear Mr. Almanza:

Thank you for your letter of May 20, 2004, requesting Federal Highway Administration (FHWA) acceptance of four of your company's products as crashworthy traffic control devices for use in work zones on the National Highway System (NHS):

- Looper Cone with 30 pound base and standard barricade light
- Metro A Cade with Phoenix Extruded Rail and standard barricade light
- Big Buster Sign Stand with dual springs, Aluminum inner mast and .080 Aluminum sign
- Phoenix Sign Stand with 12 gage, 1.75" PSST upright, .080 Aluminum sign and standard light

Accompanying your letter were reports of crash testing conducted by Karco Engineering and video of the tests. You requested that we find these devices acceptable for use on the NHS under the provisions of the National Cooperative Highway Research Program (NCHRP) Report 350 "Recommended Procedures for the Safety Performance Evaluation of Highway Features." We initially responded on August 4, 2004, and additional information was provided by Karco on November 29, 2004.

Introduction

The FHWA guidance on crash testing of work zone traffic control devices is contained in two memoranda. The first, dated July 25, 1997, titled "INFORMATION: Identifying Acceptable Highway Safety Features," established four categories of work zone devices: Category I devices are those lightweight devices which are to be self-certified by the vendor, Category II devices are other lightweight devices which need individual crash testing but with reduced instrumentation, Category III devices are barriers and other fixed or heavy devices also needing crash testing with normal instrumentation, and Category IV devices are trailer



mounted lighted signs, arrow panels, etc. for which crash testing requirements have not yet been established. The second guidance memorandum was issued on August 28, 1998, and is titled "INFORMATION: Crash Tested Work Zone Traffic Control Devices." This later memorandum lists devices that are acceptable under Categories I, II, and III.

A brief description of the devices follows:

Looper Cone with 30 pound base and standard barricade light

This 42 inch tall cone tapers from a bottom diameter of 7 3/4 inches to 4 inches at the top. It is made of low density polyethylene with a nominal wall thickness of 3/16 inches, and is ballasted with a 30 pound (recycled crumb rubber) base. A conventional Type A or C warning light, weighing 3 pounds, including batteries, was attached to the top using a 4 1/8 inch long, 1/2 inch diameter bolt and nut, (along with a vandal resistant washer.)

Metro A Cade with Phoenix Extruded Rail and standard barricade light

This Type II barricade consists of two A-Frame legs, which support, and are perpendicular to, the two 8.25 inch wide Itasca Plastics striped rails. The 96-inch long rails weigh 5.9 pounds each, and the 39.36 inch tall A-Frame legs weigh 6.2 pounds apiece. The rails are extruded high density polyethylene plastic (HDPE) and the legs are injection molded HDPE. A conventional Type A or C warning light, weighing 3 pounds, including batteries, was attached to the top using a 4 1/8 inch long, 1/2 inch diameter bolt and nut, (along with a vandal resistant washer.)

Big Buster Sign Stand with dual springs, Aluminum inner mast and .080 Aluminum sign

This "X-footprint" portable sign stand has an aluminum upright mast measuring 1 1/2 inches square, out of which telescopes the 1 1/4 inch square aluminum inner mast. The total height of the extended mast is 131 inches, which supports a 48x48 inch diamond sign approximately 60 inches above the pavement. The mast is supported on dual springs mounted on 1 1/4 inch square folding legs which measure 125 inches each when extended. The signs are held in place with a set of Traffix Devices rigid sign brackets.

Phoenix Sign Stand with 12 gage, 1.75" PSST upright, .080 Aluminum sign and standard light

The 102 inch tall mast of this stand is 12 gage, 1.75 inch square perforated square steel tubing simply supported by a recycled rubber and steel base. The bottom of the sign is mounted 13 inches above the pavement. A 48x48 inch diamond, 0.080 inch thick aluminum sign was bolted to the mast. A conventional Type A or C warning light, weighing 3 pounds, including batteries, was attached to the top using a 4 1/8 inch long, 1/2 inch diameter bolt and nut, (along with a vandal resistant washer.)

Testing

Full-scale automobile testing was conducted on your company's devices. Two stand-alone examples of the device were tested in tandem, one head-on and the next placed six meters downstream turned at 90 degrees, as called for in our guidance memoranda.

| | Test Numbers TR-P23163- | | | |
|-------------------|-------------------------|----------------|-----------------|-----------------|
| Test Number | -01-NC | -02-NC | -03-A | -04-NC |
| Device Tested | Looper Cone | Metro A Cade | Big Buster | Phoenix |
| Weight of Device | 35.3 pounds | 24.2 pounds | 65 pounds | 72 pounds |
| Mounting heights | N/A | N/A | 60 in | 12 in |
| Flags? Lights? | 1 Light | None | None | 1 Light |
| Mass of Vehicle | 1819 # | 1819# | 1819 # | 1819 # |
| Impact Speed | 101.4 km/hr | 101.1 km/hr | 100.4 km/hr | 102.0 km/hr |
| Velocity Change | 0.8 m/s | 0.4 m/s | 0.6 m/s | 1.6 m/s |
| Extent of contact | Light hit windshield | Rail hit wind. | Dents in hood | Dents in hood |
| Windshield Damage | Minor cracking | None | Glass shattered | Glass shattered |
| Other notes | None | No damage | No holes | No holes |

The tests are summarized in the table below.

Findings

Damage was limited to the bumper, sheet metal damage to the hood and roof, and minor to modest cracking to the windshield. The results of the testing met the FHWA requirements and, therefore, the devices described in the various requests above and detailed in the enclosed drawings are acceptable for use on the NHS under the range of conditions tested, when proposed by a State.

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

- Our acceptance is limited to the crashworthiness characteristics of the devices and does not cover their structural features, nor conformity with the Manual on Uniform Traffic Control Devices.
- Any changes that may adversely influence the crashworthiness of the device will require a new acceptance letter.
- Should the FHWA discover that the qualification testing was flawed, that in-service performance reveals unacceptable safety problems, or that the device being marketed is significantly different from the version that was crash tested, it reserves the right to modify or revoke its acceptance.
- You will be expected to supply potential users with sufficient information on design and installation requirements to ensure proper performance.
- You will be expected to certify to potential users that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that submitted for acceptance, and that they will meet the crashworthiness requirements of the FHWA and the NCHRP Report 350.
- To prevent misunderstanding by others, this letter of acceptance, designated as number WZ-189 shall not be reproduced except in full. This letter, and the test documentation upon which this letter is based, is public information. All such letters and documentation may be reviewed at our office upon request.
- The Traffix devices are patented products and are considered "proprietary." The use of proprietary work zone traffic control devices in Federal-aid projects is generally of a temporary nature. They are *selected by the contractor* for use as needed and removed

upon completion of the project. Under such conditions they can be presumed to meet requirement "a" given below for the use of proprietary products on Federal-aid projects. On the other hand, if proprietary devices are *specified by a highway agency* for use on

Federal-aid projects they: (a) must be supplied through competitive bidding with equally suitable unpatented items; (b) the highway agency must certify that they are essential for synchronization with 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. These provisions do not apply to exempt non-NHS projects. Our regulations concerning proprietary products are contained in Title 23, Code of Federal Regulations, Section 635.411, a copy of which is enclosed.

- This acceptance letter shall not be construed as authorization or consent by the FHWA to use, manufacture, or sell any patented device for which the applicant is not the patent holder. The acceptance letter is limited to the crashworthiness characteristics of the candidate device, and the FHWA is neither prepared nor required to become involved in issues concerning patent law. Patent issues, if any, are to be resolved by the applicant.

Sincerely yours,

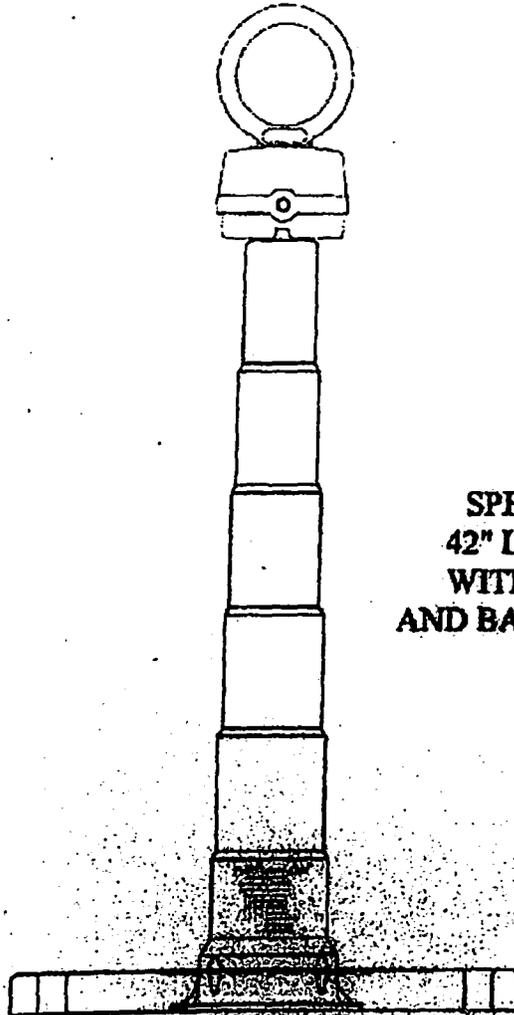
/Original Signed by Harry W. Taylor/

~for~

John R. Baxter, P.E.
Director, Office of Safety Design
Office of Safety

Enclosures

Manufacturer's Drawing of Test Article



**SPECIFICATION
42" LOOPER CONE
WITH 30 LB. BASE
AND BARRICADE LIGHT**

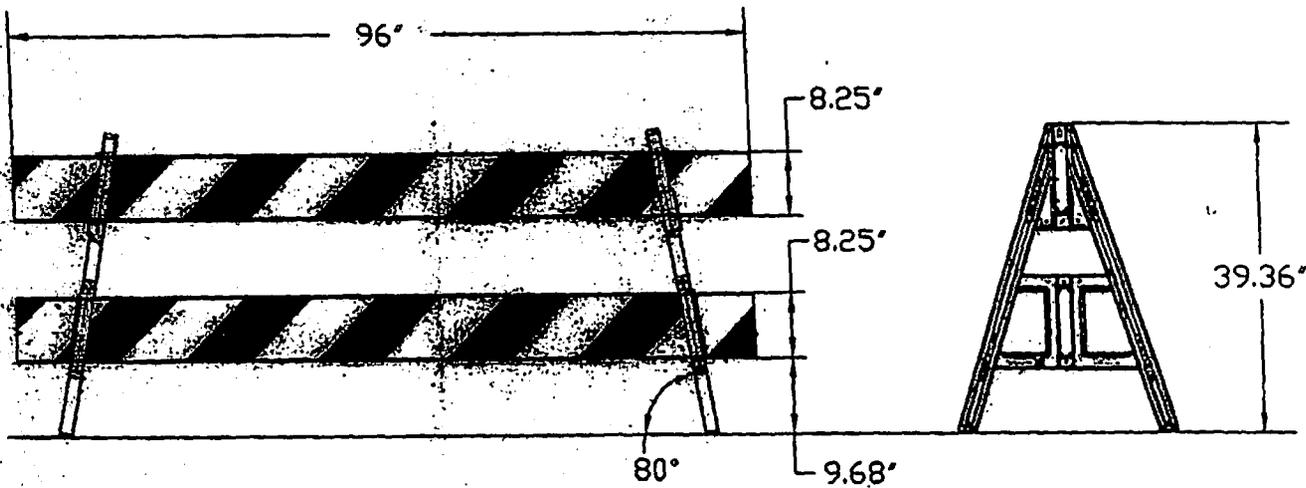
| | | | | | |
|--|-------|---|---------------------|--|--|
| UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN INCHES. | |  | | 220 Colby Park San Clemente, CA 92672 (949) 351-8203 FAX (949) 351-8208 www.trafficdevices.com | |
| | | LOOPER CONE WITH 30 LB BASE AND BARRICADE LIGHT | | | |
| DRAWN BY: | DATE: | SIZE | DWG NO. | REV | |
| CHECKED BY: | DATE: | A | 46000 SERIES | — | |
| APPROVED BY: | DATE: | SCALE 1/1 | SHEET 1 OF 1 | | |



| REVISIONS | | | | |
|-----------|-----|-------------|------|----------|
| ZONE | REV | DESCRIPTION | DATE | APPROVED |
| | | | | |

METRO A CADE WITH ITASCA RAILS

METRO A-CAD: 2 X 6.20 LB
 ITASCA RAILS: 2 X 5.90 LB



UNLESS OTHERWISE SPECIFIED:
 ALL DIMENSIONS ARE IN INCHES.



220 Calle Pintoresco
 San Clemente, CA 92672
 (949) 361-5663
 FAX (949) 361-9205
 www.traffixdevices.com

METRO A CADE
 WITH ITASCA RAIL

| | |
|--------------|-------------------|
| DRAWN BY: | DATE: 01-06-04 |
| CHECKED BY: | DATE: |
| APPROVED BY: | DATE: |

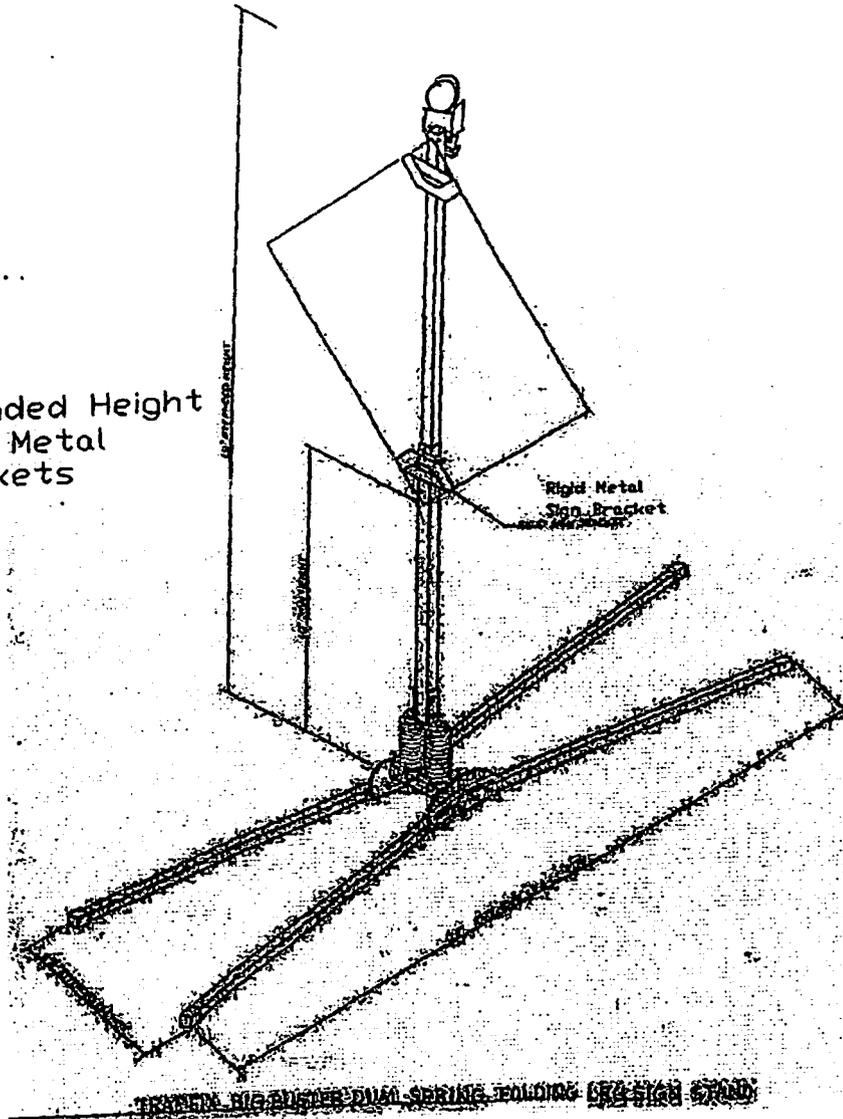
| | | |
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| SIZE A | DWG NO. 44000 SERIES | REV - |
| SCALE 1/1 | SHEET 1 OF 1 | |



REVISIONS

| REV | DESCRIPTION | DATE | APPROVED |
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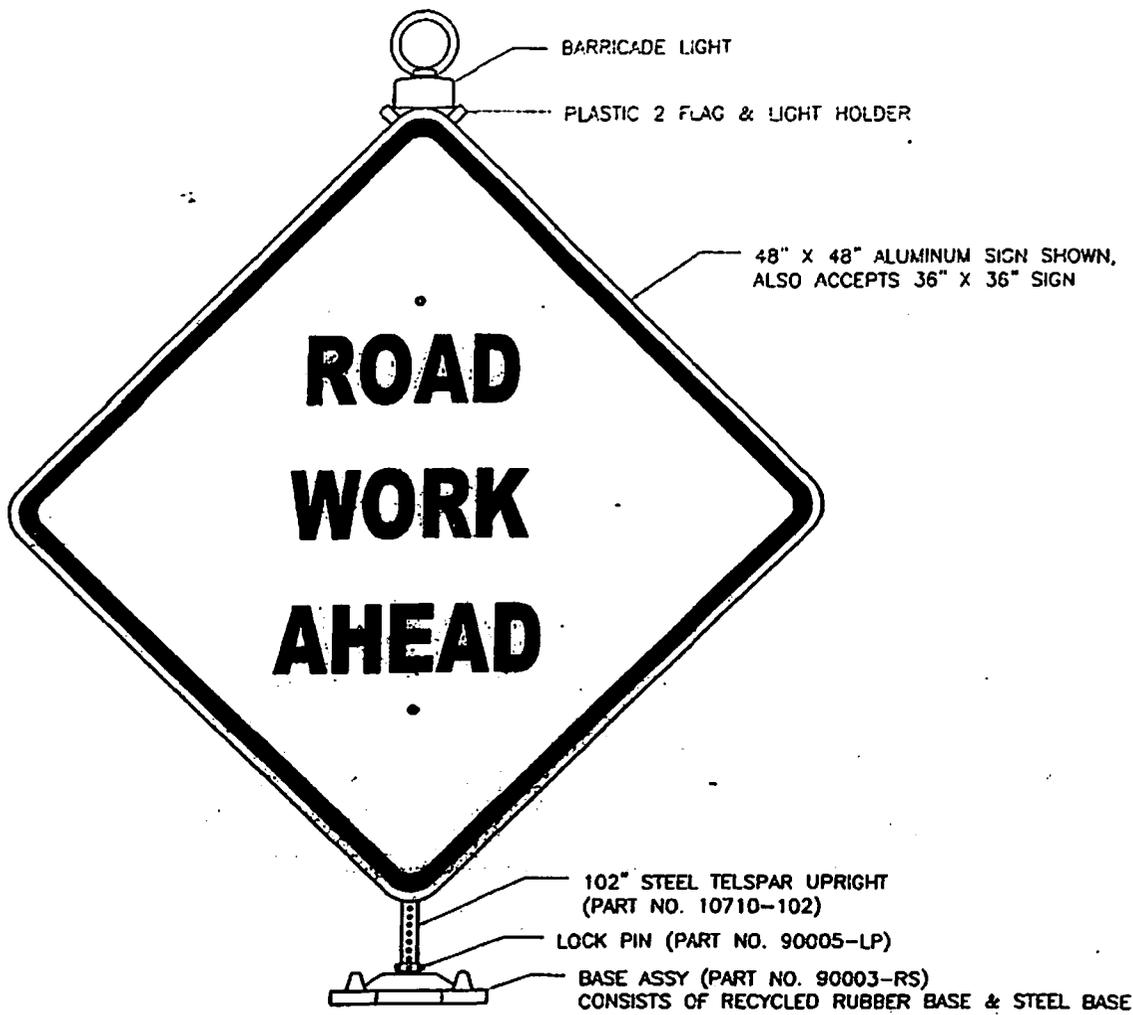
131' Extended Height
With Rigid Metal
Sign Brackets



TRAFFIX BIG BUSTER DUAL SPRING FOLDING LEG SIGN STAND WITH RIGID METAL SIGN BRACKETS

| | | | | | |
|--|-------|--|--------------|--|--|
| UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN INCHES. | | Traffix Devices Inc.  | | 220 Calle Pintoresco San Clemente, CA 92672 (949) 361-5663 FAX (949) 361-9205 www.traffixdevices.com | |
| TRAFFIX BIG BUSTER WITH DUAL SPRINGS AND FOLDING LEG STAND | | | | | |
| DRAWN BY: | DATE: | SIZE | DWG NO. | REV | |
| CHECKED BY: | DATE: | A | 60000 SERIES | - | |
| APPROVED BY: | DATE: | SCALE 1/1 | SHEET 1 OF 1 | | |

| REVISIONS | | | |
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| REV | DESCRIPTION | DATE | APPROVED |



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| UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN INCHES. | |  | | 220 Calle Pintoresco San Clemente, CA 92672 (949) 361-5863 FAX (949) 361-9269 www.traffixdevices.com | |
| | | PHOENIX SIGN STAND ASSEMBLY WITH TELSPAR LIGHT AND SIGN | | | |
| DRAWN BY: | DATE: 01-06-04 | SIZE A | DWG. NO. 90000 SERIES | REV | |
| CHECKED BY: | DATE: | | | | |