

Compliant Work Zone Traffic Control Device List



Traffic Safety Division

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Contents

A. Introduction	4
B. Definitions	7
C. Type 1 Barricades	11
C.1. Folding Type 1 Barricades	11
C.2. A-Frame Type 1 Barricades	13
C.3. Skid Mounted Type 1 Barricades	15
D. Type 3 Barricades	17
D.1. Type 3 Barricades	21
D.2. Type 3 Barricade Components	22
D.2.a. Rails for Type 3 Barricades	22
D.2.b. Supports for Skid Mounted Type 3 Barricades	23
D.2.c. Stiffeners for Type 3 Barricades	24
D.2.d. Mid-Rail Stiffeners for Type 3 Barricades	25
D.2.e. Skids for Type 3 Barricades	26
D.2.f. Posts for Fixed Type 3 Barricades	26
E. Vertical Panels	28
E.1. Rigid Vertical Panels	28
E.1.a. Drivable Supports for Rigid Vertical Panels	28
E.1.b. Substrates for Rigid Vertical Panels	29
E.1.c. Portable Rigid Vertical Panels	30
E.2. Self-Righting Vertical Panels	32
F. Cones	33
F.1. One-Piece Cones	34
F.2. Two-Piece Cones	35
G. Plastic Drums	36
G.1. Plastic Drums	37
G.2. Sign Substrates for Plastic Drums	39

H. Signs And Sign Supports	40
H.1. Permanent Sign Supports	41
H.2. Long-Term/Intermediate-Term Sign Supports	41
H.2.a. Portable Sign Supports (Long/Intermediate-Term)	41
H.2.b. Post-Type Sign Supports (Long/Intermediate-Term)	45
H.2.c. Sign Substrates for Long/Intermediate-Term Sign Supports	52
H.3. Short-Term/Short-Duration Sign Supports	54
H.3.a. Portable Sign Supports (Short-Term/Short-Duration)	54
H.3.b. Sign Substrates for Short-Term/Short-Duration Sign Supports	60
I. Temporary Mailboxes	61
J. Truck-Mounted Protective Devices	64
J.1. Truck-Mounted Attenuators (TMAs) and Trailer Attenuators (TAs) ..	64
J.2. Truck-Mounted Barriers	66
K. Portable Traffic Signals	67
L. Glare Screens.....	68
M. End Treatments for Concrete Traffic Barrier (CTB).....	69
M.1. Work Zone End Treatments for CTB	69
M.2. Vehicle Impact Attenuator (VIA) Sand Filled Plastic Modules	69
N. Traffic Barriers	70
N.1. Concrete Barriers.....	70
N.2. Steel Barriers	70
N.3. Water Filled Barriers	71
O. Longitudinal Channelizing Devices	72
P. Pedestrian Channelizing Devices	73
Q. Temporary Rumble Strips.....	75
Appendix A. Fabrication Details	76
Appendix B. Product & Information Sources.....	80

A. INTRODUCTION

This list, the Compliant Work Zone Traffic Control Device (CWZTCD) List, contains products that have been evaluated and determined to be acceptable traffic control devices for use in work zones. At a minimum, newly-manufactured devices on this list must be considered to be compliant with the *Manual for Assessing Safety Hardware* (MASH). Devices compliant with National Cooperative Highway Research Program (NCHRP) Report 350 are also acceptable if manufactured prior to December 31, 2019, and may continue to be used throughout their useful service life.

This list is intended to supplement and clarify the *Traffic Standard Plan Sheets* (Traffic Standards) by providing the most up-to-date information available. All devices shall comply with the current *Texas Manual on Uniform Traffic Control Devices* (TMUTCD).

Dimensions given in this document are nominal and are given merely for descriptive purposes.

Inclusion on this list does not imply that these products are eligible for permanent installation on state right-of-way. This list is not exhaustive; crashworthy products exist that are not included herein. The Texas Department of Transportation (TxDOT) will consider products for inclusion if sufficient information is provided to make a decision. For a product to be evaluated for inclusion on this list, all related data, such as an evaluation report prepared by an independent testing agency under the supervision of a licensed professional engineer, video tape of crash test (if crash tested), compliance letter from the FHWA, etc., must be sent to the TxDOT Traffic Standards Engineer. Do **NOT** send originals; the documentation submitted shall not be returned. TxDOT reserves the right to review all documentation and may or may not accept the device for inclusion on this list. FHWA's acknowledgement that a device is compliant with NCHRP 350 or MASH does not obligate TxDOT to include that device on this list. TxDOT reserves the right to remove products, with sufficient cause, at any time. If a product is

rejected or removed, a letter notifying of the rejection or removal and stating the specific reasons will be sent to the listed product source(s). The product source(s) may address TxDOT's concerns that caused the rejection or removal of the product and resubmit it for TxDOT's further consideration.

The devices in each category are generally listed in alphabetical order by vendor. The order is not intended to indicate a particular device preference. TxDOT does not endorse products. **This list shall not be used for product promotion.**

TxDOT recognizes that some of the items and information it needs to evaluate a device's compliance with NCHRP 350 or MASH may be proprietary and, as such, a petitioner may want them to be held in confidence. Within the limits of law, TxDOT will honor written requests for confidentiality.

For information concerning this document, clarification or interpretation of items contained herein, or for further information on submitting a device for consideration, contact the Traffic Standards Engineer.

This list addresses only the crashworthiness of the devices. When maximum sign sizes or maximum number of supports are given, they shall be adhered to. It is the responsibility of the Contractor to determine which support is appropriate for a given sign size, location, and soil condition. A device considered crashworthy may not be crashworthy if used or installed incorrectly. It is the Contractor's responsibility to use or install the device in a manner such that it will function as intended.

The Engineer, through a General Note in the plans, may disallow the use of specific devices on this list or require that specific devices from this list be used. A proprietary device should not be used unless: (a) the device is supplied through a competitive bidding with equally suitable unpatented items; (b) TxDOT certifies 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. The Engineer

shall not require the use of a device, of the types included herein, that is not on this list.

TxDOT encourages the use of recycled products when possible. Plastic products shall be UV/color-stabilized.

All reflective sheeting shall as a minimum meet either one of the following Departmental Material Specifications (DMS): *DMS-8300, Sign Face Materials* or *DMS-8310, Flexible Roll-Up Reflective Signs*. When the sheeting used on a particular device exceeds the requirements of these specifications, all similar devices used in that area shall use equivalent sheeting (e.g., all drums should use an equivalent grade of sheeting).

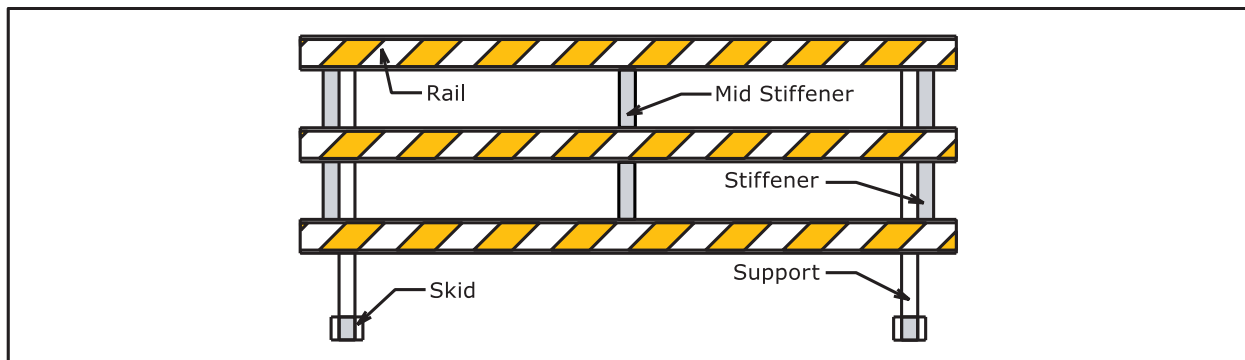
B. DEFINITIONS

ASTM — American Society for Testing and Materials — This organization publishes many specifications. They are referenced by number of the form “ASTM LXXX-Year” (e.g., ASTM C387-95) and are available from their website: www.astm.org.

Backfill — soil that was originally in the hole dug for support placement that is used to refill the hole after the support is placed.

Barricade — a portable or fixed channelizing device having from one to three rails with appropriate markings (see the *Texas Manual on Uniform Traffic Control Devices* for more details). Barricades are used to control traffic by closing, restricting, or delineating all or a portion of the roadway. The type refers to the number of rails (i.e., a Type 1 has one rail, a Type 2 has two rails, and a Type 3 has three rails). See Figure B-1 for a description of barricade components.

Figure B-1. Barricade Component Terminology



BC Sheets — *Barricade and Construction Standard Sheets* — a section of the Traffic Standards that are available on the TxDOT website at: <http://www.txdot.gov/business/disclaim.htm>.

CCA — chromated copper arsenate.

CDX plywood — a type of plywood.

Concrete, premixed — normal strength / normal weight concrete complying with *ASTM C387-95 Standard Specification for Packaged, Dry, Combined Materials for Mortar and Concrete*. Most prepackaged concrete mixes comply with this specification.

DMS — TxDOT Departmental Material Specifications are referenced by numbers in the form “DMS-XXXX” (e.g., DMS-8310). In some older publications, the reference number may be in the form “D-9-XXXX”. These numbers are available from the TxDOT Construction Division or from the TxDOT website: www.txdot.gov.

Embedment, direct — placed in the original soil by driving or by creating a hole and backfilling.

FHWA — the Federal Highway Administration.

F.K.A. — formerly known as.

FRP — fiberglass reinforced plastic.

HDPE — high density polyethylene.

HPPL — hollow-profile plastic lumber — hollow core plastic boards with dimensions similar to that of lumber.

LDPE — low density polyethylene.

PSST — perforated square steel tubing.

Part 6 of the TMUTCD — *Texas Manual on Uniform Traffic Control Devices, Part 6 – Temporary Traffic Control*.

Soilcrete — backfill stabilized by mixing with Portland cement.

SMD Sheets — *Sign Mounting Details Standard Sheets* — a section of the Traffic Standards that are available on the TxDOT website at: <http://www.txdot.gov/business/disclaim.htm>.

Substrate — component of the sign to which the retroreflective sheeting is affixed.

SYP, No. 2 — Number (No.) 2 southern yellow pine. Different species and grades with similar structural properties may be used. For purposes of this list, these equivalent species/grades are:

- No. 2 Southern Pine.
- No. 2 Douglas Fir.
- No. 1 Western Hemlock.
- No. 2 Ponderosa Pine.
- No. 2 Red Pine.
- No. 1 Western Red Cedar.

SPL — solid plastic lumber.

Traffic Standards — *Traffic Standard Plan Sheets* — available on the TxDOT website at: <http://www.txdot.gov/business/disclaim.htm>.

TMUTCD — *Texas Manual on Uniform Traffic Control Devices* — available on the TxDOT website at: <https://www.txdot.gov/business/resources/traffic-design-standards/tmutcd.html>.

TRF — TxDOT Traffic Safety Division.

TxDOT — Texas Department of Transportation.

UV/color-stabilized — denotes a plastic which has chemicals added during the manufacturing process that significantly reduces plastic degradation and color fading caused from exposure to ultraviolet light (i.e., sunlight).

Work, duration of — There are five categories for duration of work:

- **Long-term** — work that occupies a location more than 3 days.
- **Intermediate-term** — work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than 1 hour.
- **Short-term** — daytime work that occupies a location for more than 1 hour within a single daylight period.
- **Short duration** — daytime work that occupies a location up to one hour.
- **Mobile** — work that moves continuously or intermittently (stopping up to approximately 15 minutes).

C. TYPE 1 BARRICADES

Requirements for Type 1 Barricades

- Type 1 barricades shall comply with the requirements of the current *Texas Manual on Uniform Traffic Control Devices (TMUTCD)*.
- Warning lights shall not be attached to barricades.
- Barricades shall be no greater than 8 feet in length.

C.1. Folding Type 1 Barricades

Table C-1. Generic Design of Folding Type 1 Barricades

Material	Design
Hollow-profile plastic lumber (HPPL), wood, or plywood (Figure C-1)	<p>2 x 4 HPPL uprights with 1 x 8 HPPL, 1 x 8 wood, or plywood rail.</p> <ul style="list-style-type: none"> • Wood shall be No. 2 SYP or equivalent. • Plywood shall be 5/8-inch x 8-inch marine grade, CCA pressure treated, CDX or similar plywood with water resistant glue. • Paint all wood and plywood surfaces white if not covered by reflective sheeting.

Figure C-1. Generic HPPL Folding Type 1 Barricade

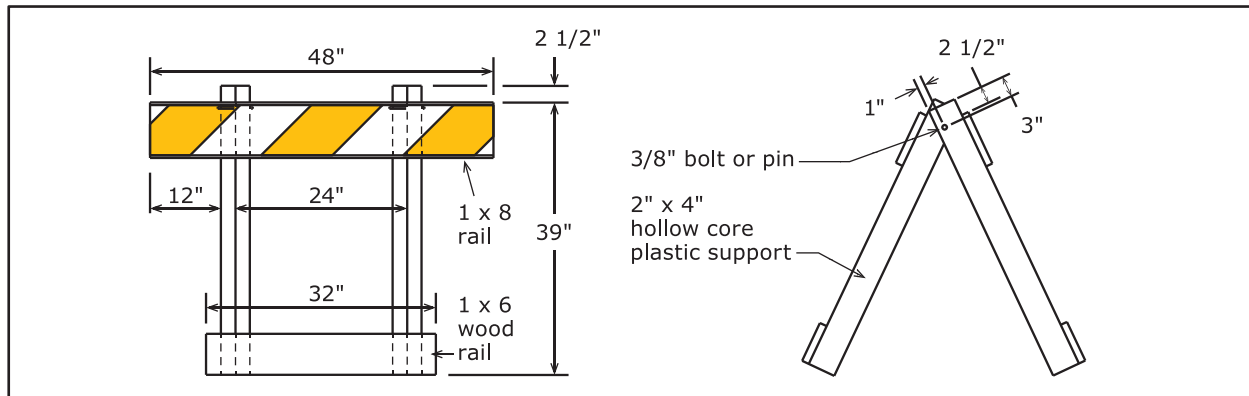


Table C-2. Components of Folding Type 1 Barricades

Device	Manufacturer
Plastic components of HPPL folding Type 1 barricades	<ul style="list-style-type: none"> • Aeolian Enterprises • Three D Traffic Works, Inc.

Table C-3. Folding Type 1 Barricades

Device	Manufacturer
<ul style="list-style-type: none"> • Folding barricade with steel legs and plastic or plywood rails • Universal Plastic Barricade 	Bent Mfg. Co. BDAA Inc.
<ul style="list-style-type: none"> • Plastic Barricade Model PRB-124 	Cortina Safety Products
<ul style="list-style-type: none"> • Plank-A-Cade folding plastic barricade 	Flasher Flare South East, Inc.
<ul style="list-style-type: none"> • Fibercade folding plastic barricade 	Plasticade
<ul style="list-style-type: none"> • TD2100 all-plastic barricade • TD2150 Works Barricade all plastic • TD2200 Works Barricade, Plastic Panels and Galvanized Legs • TD2250 Works Barricade, Plastic Panels and Steel Legs • TD2300 Works Barricade, Wood Panels and Galvanized Legs • TD3000 <ul style="list-style-type: none"> - Configured as a Type 1 or Type 2 barricade only, using only rails contained on this list. - Components are not to be used as a sign support. 	Three D Traffic Works, Inc.
<ul style="list-style-type: none"> • Economy plastic folding barricade • High-Impact plastic folding barricade • High-Impact plastic panel and steel leg (12 and 14 ga.) folding barricade 	Traffix Devices, Inc.

C.2. A-Frame Type 1 Barricades

Table C-4. Generic Design of A-Frame Type 1 Barricades

Material	Design
Wood (Figure C-2)	Two 2 x 6 wood A-frames with a 1 x 8 wood rail. <ul style="list-style-type: none"> • Wood shall be No. 2 SYP or equivalent.
Hollow-profile plastic lumber (HPPL) (Figure C-3)	1 x 8 HPPL rail, 2 x 6 HPPL legs, and 1 x 4 HPPL braces. <ul style="list-style-type: none"> • The height of this barricade shall be a minimum of 36 inches and a maximum of 42 inches. • The rail may vary from 4 to 8 feet in length.

Figure C-2. Generic Wood A-Frame Type 1 Barricade

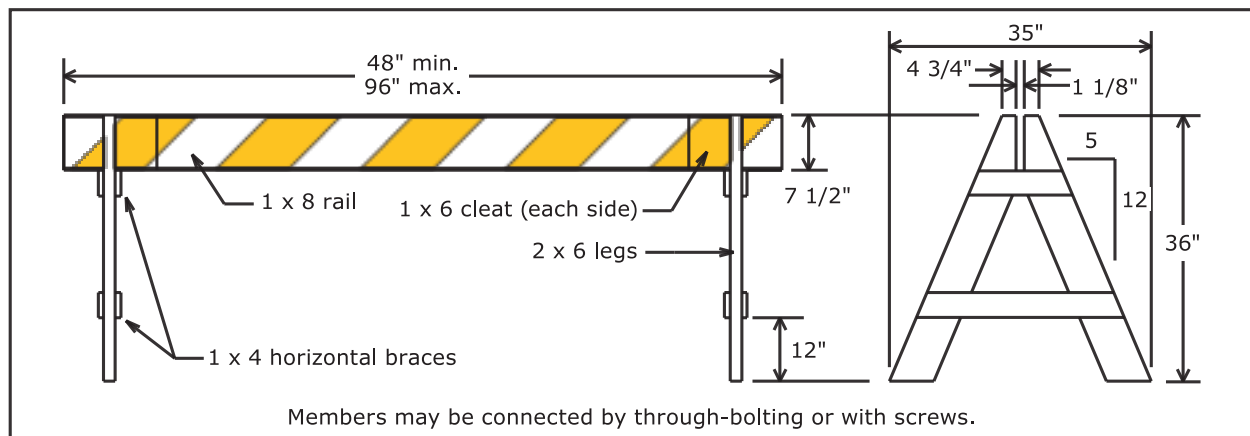


Figure C-3. Generic HPPL A-Frame Type 1 Barricade

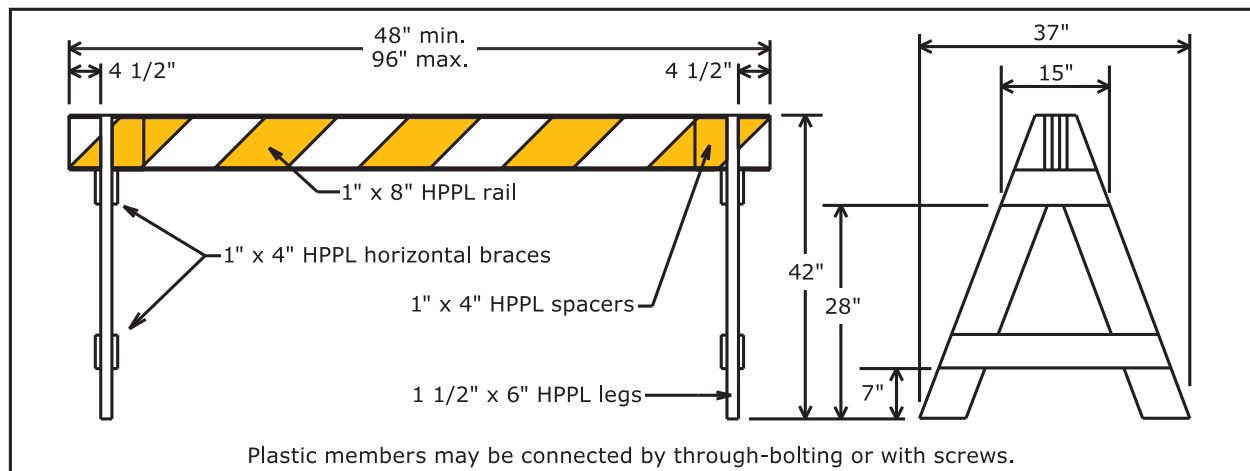


Table C-5. A-Frame Type 1 Barricades

Device	Manufacturer
<ul style="list-style-type: none">• Parade Style A-Frame Barricade• A-frame plastic barricade	Cortina Safety Products
<ul style="list-style-type: none">• TD3000<ul style="list-style-type: none">- Configured as a Type 1 or Type 2 barricade only, using only rails contained on this list.- Components are not to be used as a sign support.	Three D Traffic Works, Inc.
<ul style="list-style-type: none">• Traffix-"A"-CADE™ rigid A-frame barricade system and Traffix-RAIL™ or 1 x 8 No. 2 SYP (or equivalent)	Traffix Devices, Inc.

C.3. Skid Mounted Type 1 Barricades

Requirements for Skid Mounted Type 1 Barricades

- Type 1 skid mounted barricades (Figures C-4 and C-5) can be made with the same rails, supports, and skids allowed for Type 3 barricades.
- A skid mounted Type 1 barricade should be no more than 36 inches tall.
- Stiffeners and mid-stiffeners are not needed for the construction of Type 1 barricades.

Figure C-4. Generic Perforated Square Metal Tubing Skid Mounted Type 1 Barricade

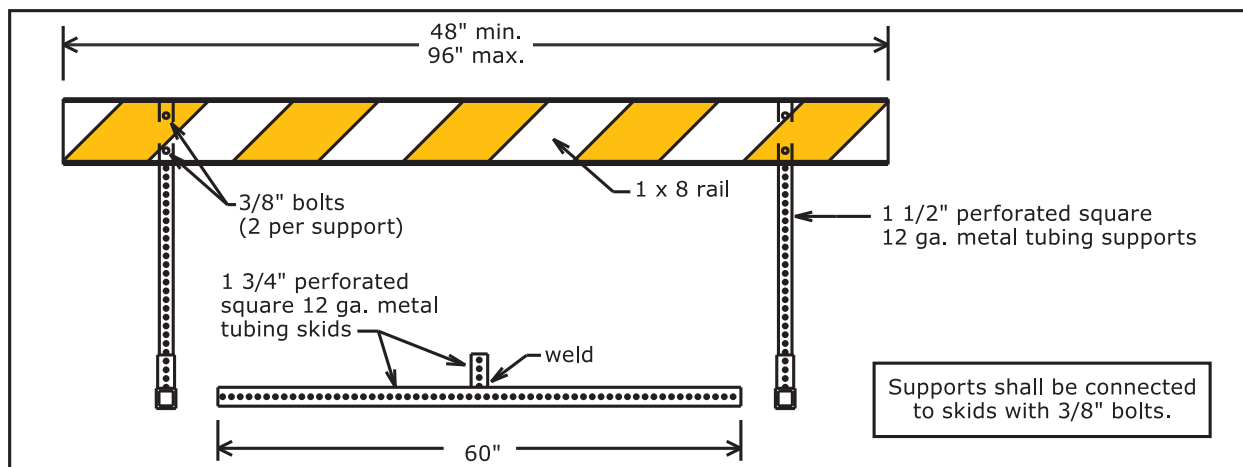


Figure C-5. Generic Wood & HPPL Skid Mounted Type 1 Barricade

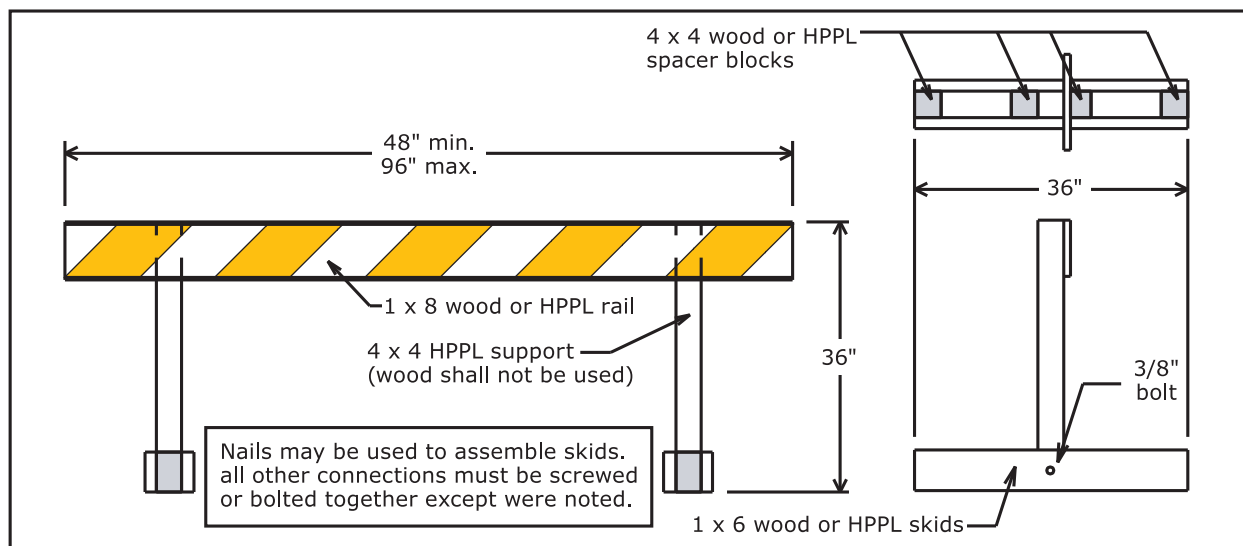


Table C-6. Skid Mounted Type 1 Barricades

Device	Manufacturer
<ul style="list-style-type: none">• Melba, USA - System '98™ Model M1B-1-24• Melba, USA - System '98™ Model M2B-1-48	Eastern Metal Signs & Safety
<ul style="list-style-type: none">• HPPL barricade with rubber skids	Rad-Tec Fabricators, Inc.
<ul style="list-style-type: none">• TraFFix-CADE™ modular barricade system	TraFFix Devices, Inc.

D. TYPE 3 BARRICADES

Requirements for Type 3 Barricades

- Type 3 barricades shall comply with the requirements of the current *Barricade and Construction Standard Sheets* (BC Sheets) and the current *Texas Manual on Uniform Traffic Control Devices* (TMUTCD).
- Warning lights shall not be attached to barricades.
- Barricades shall be no greater than 8 feet in length.

A lower cross member (see Figure D-1) is often needed on some barricades with plastic rails. The purpose of the lower cross member is to provide structural support if the rails cannot. The presence or absence of the lower cross member has no bearing on the crashworthiness of the barricade.

Figure D-1. Generic Perforated Square Steel Tubing Barricade with Plastic Rails

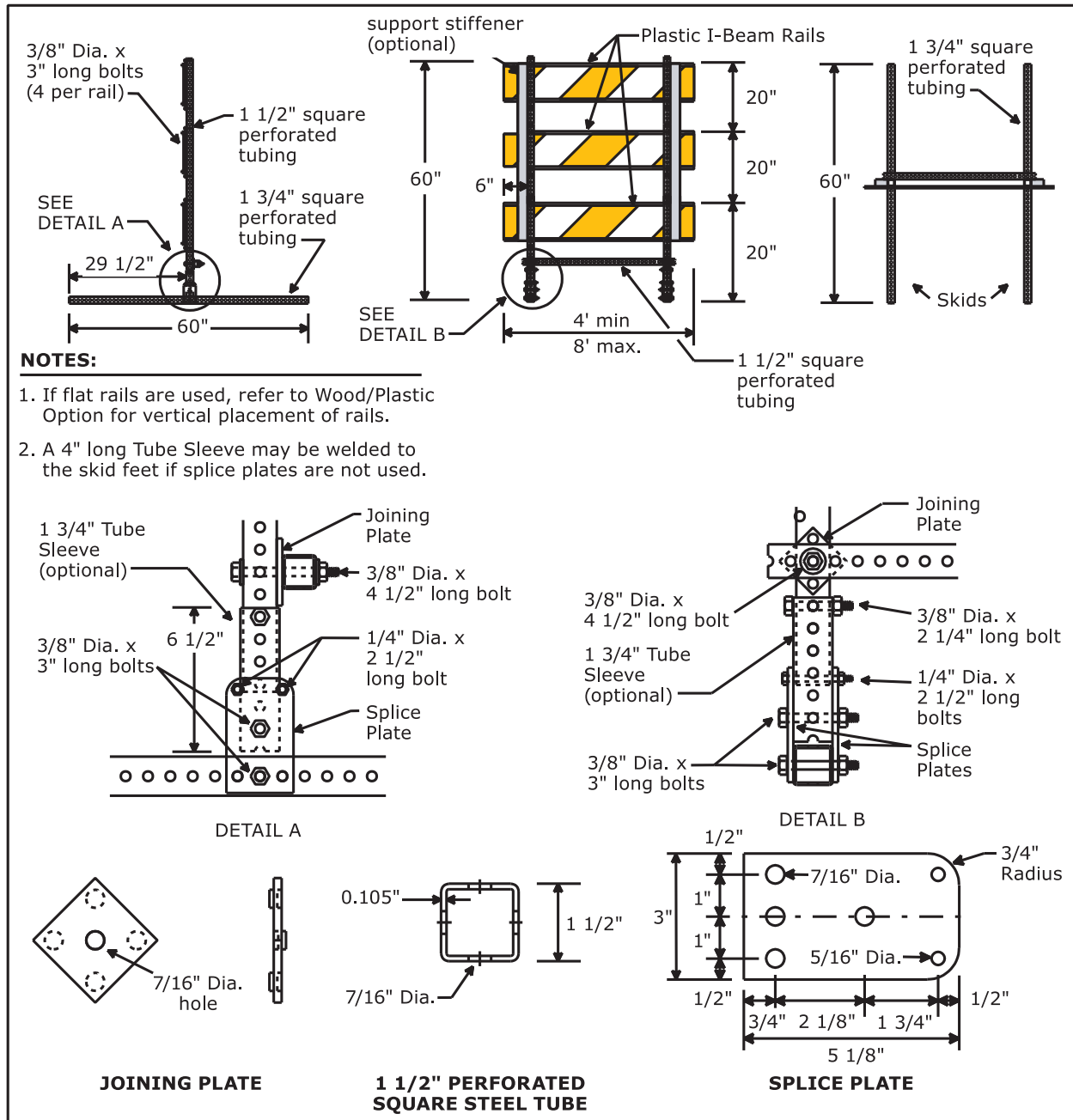


Figure D-2. Generic Plastic/Wood Type 3 Barricade

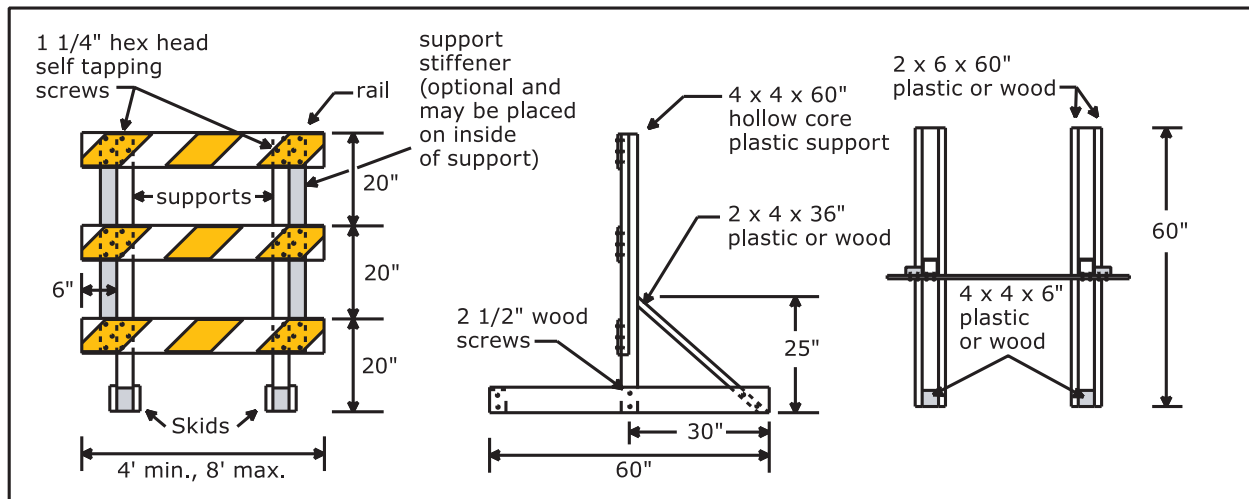


Figure D-3. Generic Plastic/Fiberglass Type 3 Barricade

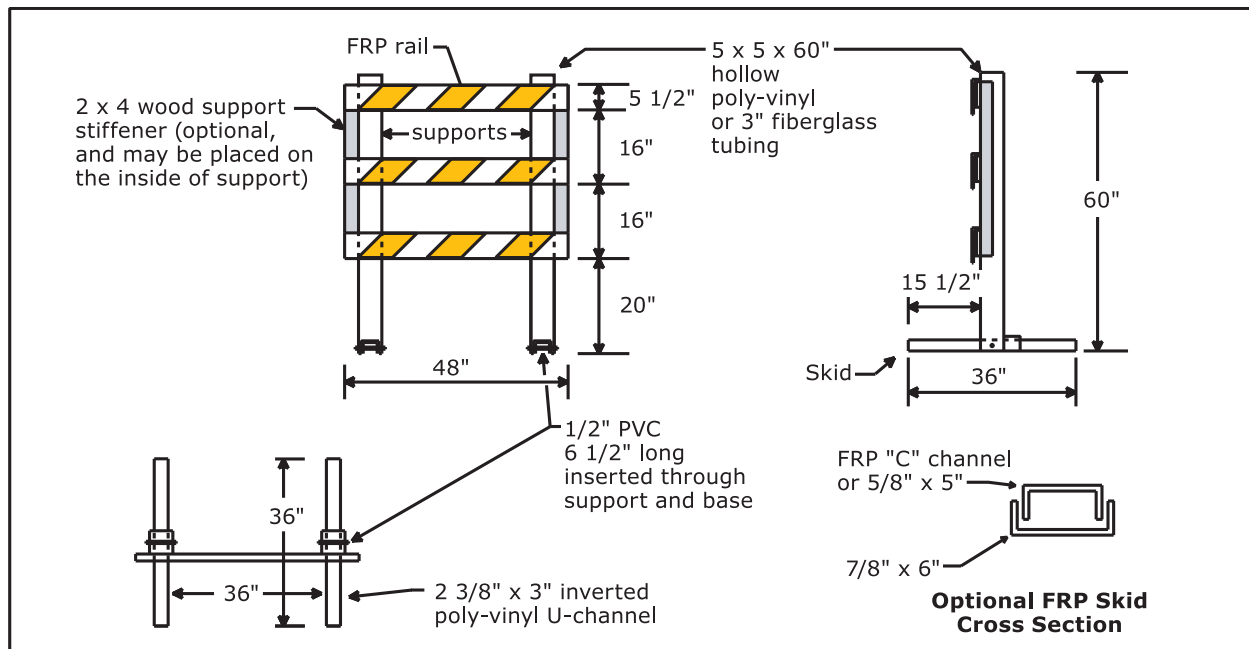
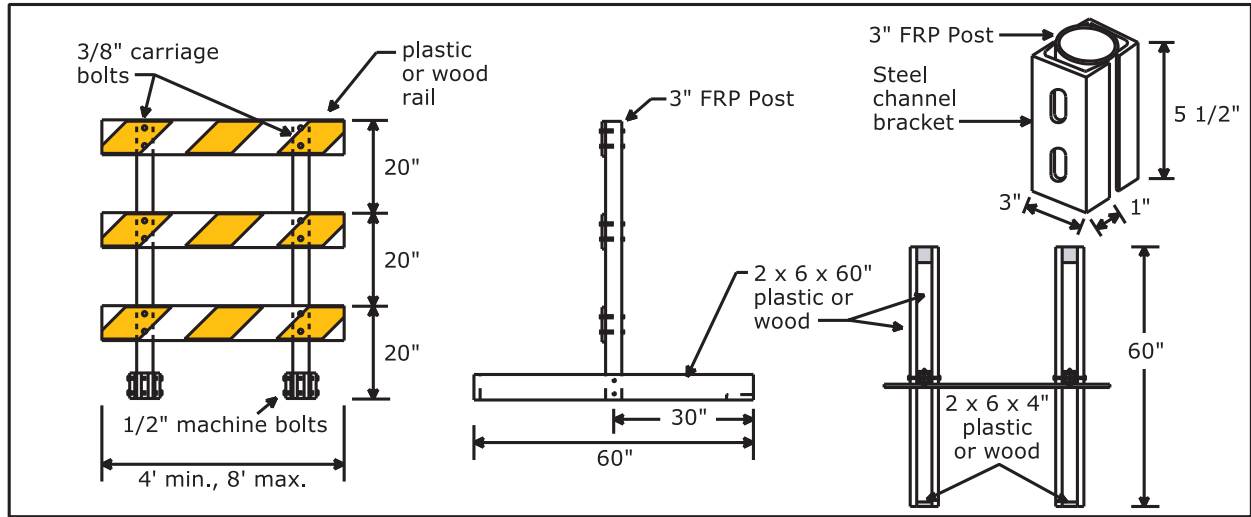


Figure D-4. Generic Plastic/Wood/Fiberglass Type 3 Barricade



D.1. Type 3 Barricades

Table D-1. Type 3 Barricades

Device	Manufacturer
<ul style="list-style-type: none"> Type 3 Barricade 	Bent Mfg. Co. BDAA Inc.
<ul style="list-style-type: none"> Type 3 Barricade 	Cortina Safety Products.
<ul style="list-style-type: none"> Type 3 Barricade 	PBS, Inc.
<ul style="list-style-type: none"> Model T3B 	Pexco, LLC / Davidson Traffic Control Products
<ul style="list-style-type: none"> Anchor Mast LaneGard 3 	Plastic Safety Systems, Inc.
<ul style="list-style-type: none"> Plasticade Telespar Type 3 Barricade with PSST uprights and feet or PSST uprights and angle iron feet Power Post Plastic uprights with PSST or angle iron feet Type 3 Barricade with angle iron uprights and feet 	Plasticade
<ul style="list-style-type: none"> Type 3 Barricade 	Rad-Tec Fabricators, Inc.
<ul style="list-style-type: none"> Type 3 Barricade 	Recycled Plastic Products, Inc.
<ul style="list-style-type: none"> Model TD2400 plastic rails and uprights with PSST, angle steel, or 35 lb rubber based designed for this product Model TD2500 wood rails with angle steel base Model TD2550 wood rails with PSST base Model TD2600 plastic rails with angle steel base Model TD2650 plastic rails with PSST base 	Three D Traffic Works, Inc.
<ul style="list-style-type: none"> Model 5004-HI-2 Model 5008-HI-2 	TraFFix Devices, Inc.

Table D-2. Type 3 Barricades for Road Closures

Device	Manufacturer
<ul style="list-style-type: none"> Yodock 2001, Energy Disbursement Cell 	Valtir, LLC.

D.2. Type 3 Barricade Components

D.2.a. Rails for Type 3 Barricades

Table D-3. Rails for Type 3 Barricades

Device	Manufacturer
Wood <ul style="list-style-type: none"> No. 2 SYP or equivalent 	<ul style="list-style-type: none"> N/A
Plywood, 1/2 or 5/8-inch thick <ul style="list-style-type: none"> Marine grade, CCA pressure treated, CDX or similar plywood with water resistant glue. Paint all wood surfaces white if not covered by reflective sheeting. 	<ul style="list-style-type: none"> N/A
High-density polyethylene (HDPE) <ul style="list-style-type: none"> I-beam 0.7 lb/ft maximum 8-inch single thickness web Hollow core flanges 	<ul style="list-style-type: none"> N/A
Hollow-profile plastic lumber (HPPL) <ul style="list-style-type: none"> 1 x 8 rectangular 0.8 lb/ft max May have internal stiffeners. 	<ul style="list-style-type: none"> Aeolian Enterprises Cortina Safety Products Eastern Metal Signs & Safety Flasher Flare South East, Inc. Itasca Plastics Plasticade Plastic Safety Systems, Inc. Recycled Plastic Products, Inc. Three D Traffic Works, Inc.
InteCell® 13 to 16 mm integral skin expanded foam PVC sheet.	<ul style="list-style-type: none"> Inteplast Group Ltd.
Traffix-RAIL <ul style="list-style-type: none"> Can be used alone or with Traffix Device's Rail Clip. 	<ul style="list-style-type: none"> Traffix Devices, Inc.

D.2.b. Supports for Skid Mounted Type 3 Barricades

Table D-4. Supports for Skid Mounted Type 3 Barricades

Device	Manufacturer
High-density polyethylene (HDPE) pipe <ul style="list-style-type: none"> • 3-3/4 inch diameter • 0.089-inch wall thickness 	<ul style="list-style-type: none"> • Eastern Metal Signs & Safety
Hollow-profile plastic lumber (HPPL) <ul style="list-style-type: none"> • 4 x 4 square • 0.6 lb/ft maximum 	<ul style="list-style-type: none"> • Aeolian Enterprises • Bufftech • Plastic Safety Systems, Inc. • Recycled Plastic Products, Inc.
Steel tubing, perforated square metal <ul style="list-style-type: none"> • 1-1/2 inches square • 12 gauge 	<ul style="list-style-type: none"> • Atkore (F.K.A. Allied Tube & Conduit) • Valtir, LLC. • Ultimate Highway Solutions • Western Highway Products, Inc.
Steel tubing, circular metal <ul style="list-style-type: none"> • 2-3/8 inches diameter • 0.080 or 0.095-inch wall thickness (thin wall) 	<ul style="list-style-type: none"> • Valtir, LLC. or any other manufacturer
X-tube <ul style="list-style-type: none"> • 1-3/4 inch square plastic with X-stiffener • 0.6 lb/ft maximum 	<ul style="list-style-type: none"> • Pexco, LLC / Davidson Traffic Control Products • Three D Traffic Works, Inc.

D.2.c. Stiffeners for Type 3 Barricades

Stiffeners are not required. The Contractor may choose to use them if they aid in setting up or taking down the barricade.

Table D-5. Stiffeners for Type 3 Barricades

Device	Manufacturer
Wood <ul style="list-style-type: none"> • 2 x 4 • No. 2 SYP or equivalent. 	<ul style="list-style-type: none"> • N/A
Hollow-profile plastic lumber (HPPL) <ul style="list-style-type: none"> • 2 x 4 rectangular or 4 x 4 square • 0.6 lb/ft maximum 	<ul style="list-style-type: none"> • Aeolian Enterprises • Bufftech • Plastic Safety Systems, Inc. • Recycled Plastic Products, Inc.
Steel tubing, perforated square metal <ul style="list-style-type: none"> • 1-1/2 inches square • 12 gauge 	<ul style="list-style-type: none"> • Atkore (F.K.A. Allied Tube & Conduit) • Ultimate Highway Solutions • Western Highway Products, Inc.
Steel tubing, circular metal <ul style="list-style-type: none"> • 2-3/8 inches diameter • 0.080 or 0.095-inch wall thickness (thin wall) 	<ul style="list-style-type: none"> • Valtir, LLC. or any other manufacturer
Solid plastic lumber (SPL) <ul style="list-style-type: none"> • 2 x 4 rectangular 	<ul style="list-style-type: none"> • Metro Plastic Barricades • Recycled Plastic Products, Inc.
X-tube <ul style="list-style-type: none"> • 1-3/4 inch square plastic with X-stiffener • 0.6 lb/ft maximum 	<ul style="list-style-type: none"> • Pexco, LLC / Davidson Traffic Control Products

D.2.d. Mid-Rail Stiffeners for Type 3 Barricades

Mid-rail stiffeners are not required unless there is noticeable twisting of the rails due to lack of support.

Table D-6. Mid-Rail Stiffeners for Type 3 Barricades

Device	Manufacturer
Wood 2 x 4 <ul style="list-style-type: none">• No. 2 SYP or equivalent	• N/A
Hollow-profile plastic lumber (HPPL) <ul style="list-style-type: none">• 2 x 4 rectangular or 4 x 4 square• 0.6 lb/ft maximum	• Aeolian Enterprises • Bufftech • Plastic Safety Systems, Inc. • Recycled Plastic Products, Inc.
X-tube <ul style="list-style-type: none">• 1-3/4 inch square plastic with X-stiffener• 0.6 lb/ft maximum	• Pexco, LLC / Davidson Traffic Control Products

D.2.e. Skids for Type 3 Barricades

Table D-7. Skids for Type 3 Barricades

Device	Manufacturer
Wood 2 x 6 <ul style="list-style-type: none"> • No. 2 SYP or equivalent 	<ul style="list-style-type: none"> • N/A
Steel tubing, perforated or solid wall square metal <ul style="list-style-type: none"> • 1-3/4 inches or 2 inches • 12 gauge 	<ul style="list-style-type: none"> • Atkore (F.K.A. Allied Tube & Conduit) • Three D Traffic Works, Inc. • Ultimate Highway Solutions
Hollow-profile plastic lumber (HPPL) <ul style="list-style-type: none"> • 2 x 6 rectangular 	<ul style="list-style-type: none"> • Aeolian Enterprises • Bufftech • Plastic Safety Systems, Inc. • Recycled Plastic Products, Inc.
Solid plastic lumber (SPL) <ul style="list-style-type: none"> • 2 x 6 rectangular 	<ul style="list-style-type: none"> • Metro Plastic Barricades • Recycled Products, Inc.
Crumb rubber	<ul style="list-style-type: none"> • Rad-Tec Fabricators, Inc. • Three D Traffic Works, Inc.
High-density polyethylene (HDPE) Extrusion - Anchor Base	<ul style="list-style-type: none"> • Plastic Safety Systems, Inc.
Angle Steel <ul style="list-style-type: none"> • 1 1/2" x 1 1/2" x .125" 	<ul style="list-style-type: none"> • Three D Traffic Works, Inc.

D.2.f. Posts for Fixed Type 3 Barricades

Supports listed below may have specific allowable anchoring methods, number of posts allowed in 7-foot vehicle path, and soil requirements. Strict adherence to these requirements is essential for the device to function as intended during a crash. The Contractor is responsible for installing devices as they were designed to be used.

Table D-8. Posts for Fixed Type 3 Barricades

Device	Manufacturer
<p>Steel tubing, perforated 1-1/2 inch square</p> <ul style="list-style-type: none"> • 12 gauge with 7/16-inch holes punched on 1-inch centers. • This support may be directly embedded a minimum of 48 inches in both weak and strong soils. • As an option, an anchor stub may be used. The anchor stub is the next larger size tubing. • Additionally, an 18-inch reinforcing sleeve made from the next larger size tubing may be used. • The optional anchor stub, when used, shall be embedded at least 34 inches in strong soils or 55 inches in weak soils with approximately 1 inch protruding above the ground. • Both systems may also be set in concrete, soilcrete, or expanding polyurethane foam. 	<ul style="list-style-type: none"> • Atkore (F.K.A. Allied Tube & Conduit) • Ultimate Highway Solutions • Western Highway Products, Inc.
<p>V-Loc™ Socket System</p> <ul style="list-style-type: none"> • This anchor system may be used with thin-wall round tubing and 2-inch square tubing. • With an adapter, the anchor can also be used with U-channel. 	<ul style="list-style-type: none"> • TAPCO - Traffic & Parking Control Co.
<p>Fiberglass reinforced plastic (FRP) pipe</p> <ul style="list-style-type: none"> • May be directly embedded or may be anchored with the Universal Anchor System. • No more than 2 posts shall be installed within a 7-foot span. • The anchor, if used, should be set in concrete or expanding polyurethane foam. • Anchor shall protrude no more than 4 inches from the ground. • As an option, the post (without the anchor) may be set in concrete, soilcrete, or expanding polyurethane foam. 	<ul style="list-style-type: none"> • Universal Anchor Systems, LLC
<p>Tubing, circular metal</p> <ul style="list-style-type: none"> • 2-3/8 inches diameter • 0.080 or 0.095-inch wall thickness (a.k.a. thin wall) • Used with Poz-Loc Wedge and Socket Foundation. • Socket may be used as drivable base in strong soil, or it may be set in concrete or expanding polyurethane foam. 	<ul style="list-style-type: none"> • Valtir, LLC.

E. VERTICAL PANELS

Requirements for Vertical Panels

- Vertical Panels (VPs) shall comply with the requirements of the current *Barricade and Construction Standard Sheets* (BC Sheets) and the current *Texas Manual on Uniform Traffic Control Devices* (TMUTCD).
- Warning lights shall not be attached to VPs.

E.1. Rigid Vertical Panels

E.1.a. Drivable Supports for Rigid Vertical Panels

Table E-1. Drivable Supports for Rigid Vertical Panels

Device	Requirements
Steel flange channel	2.0 lb/ft maximum
Steel pipe	1/2 inch Schedule 40
Steel angle	1-1/2 inch x 1-1/2 inch
Wood 2 x 4	No. 2 SYP or equivalent
Flexible delineator posts	Conform to <i>DMS-4400, Flexible Delineator and Object Marker Posts (Embedded and Surface Mount Types)</i>

E.1.b. Substrates for Rigid Vertical Panels

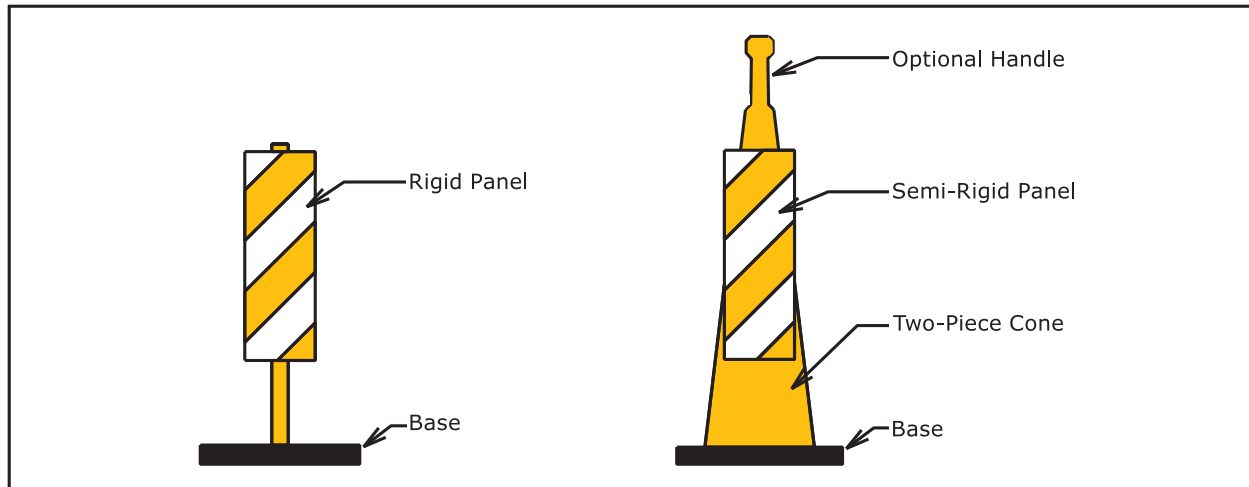
Table E-2. Substrates for Rigid Vertical Panels

Material	Device	Manufacturer
Plastic, solid, 1/8 inch to 1/4 inch thick, fiber reinforced and non reinforced	<ul style="list-style-type: none"> • ABS acrylic • Fiberglass reinforced polycarbonate 	<ul style="list-style-type: none"> • International Plastics Corporation
Plastic, solid, 1/8 inch to 1/4 inch thick, fiber reinforced and non reinforced	<ul style="list-style-type: none"> • Polyplate® Fiberglass reinforced plastic sign panel, 0.135 inch thick 	<ul style="list-style-type: none"> • Sequentia Incorporated
Plastic, solid, 1/8 inch to 1/4 inch thick, fiber reinforced and non reinforced	<ul style="list-style-type: none"> • Fiber-Brite • Survivor 	<ul style="list-style-type: none"> • U.S. Highway Products
Plastic, blow molded high-density polyethylene panel	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • Itasca Plastics • TrafFix Devices, Inc.
Plastic, corrugated panel with or without fiberglass reinforcement	<ul style="list-style-type: none"> • Coroplast 10mm extruded thinwall fluted plastic sheet 	<ul style="list-style-type: none"> • Coroplast, Inc.
Plastic, corrugated panel with or without fiberglass reinforcement	<ul style="list-style-type: none"> • IntePro® 10mm extruded thinwall fluted plastic sheet 	<ul style="list-style-type: none"> • Inteplast Group Ltd.
Plastic, corrugated panel with or without fiberglass reinforcement	<ul style="list-style-type: none"> • Endurance™ Sign 	<ul style="list-style-type: none"> • Reflexite Corporation
Plastic, corrugated panel with or without fiberglass reinforcement	<ul style="list-style-type: none"> • Coro-Lite Corrugated FRP Sign Panel, 0.25 inch thick • Fiber-Brite Fiberglass-Reinforced Plastic Sign Panel, 0.135 inch thick 	<ul style="list-style-type: none"> • US Highway Products, Inc.
Plywood, 3/8 or 1/2-inch thick <ul style="list-style-type: none"> • Marine grade, CCA pressure treated, CDX or similar plywood with water-resistant glue. • Paint all wood surfaces white if not covered by reflective sheeting. 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A

E.1.c. Portable Rigid Vertical Panels

A portable rigid vertical panel (Figure E-1) is usually made with a rigid plastic panel mounted on a plastic upright with a base or by attaching a semi-rigid panel to a standard two-piece cone.

Figure E-1. Typical Portable Rigid Vertical Panel



Any compliant two-piece cones (see Section F.2) with a semi-rigid substrate panel securely attached are acceptable.

Table E-3. Portable Rigid Vertical Panels

Device	Manufacturer
<ul style="list-style-type: none"> • Plastic pipe, 1-1/2 inch Schedule 40 PVC with an approved panel and a rubber base 	N/A
<ul style="list-style-type: none"> • T-Top Stackable vertical panel with 30 lb. base • Ultra Panel - stackable vertical panel with 30 lb. base 	Bent Mfg. Co. BDAA Inc.
<ul style="list-style-type: none"> • Model VPB-36 • Model 44 VPs • TrailBlazer Vertical Panel 	Cortina Safety Products
<ul style="list-style-type: none"> • 45" Vertical Panel with 30 lb. base 	Custom-Pak, Inc.
<ul style="list-style-type: none"> • 8 x 24 or 12 x 36 Inch VP 	Flasher Flare South East, Inc.
<ul style="list-style-type: none"> • Divertor with 30 lb. base 	Lakeside Plastics, Inc.
<ul style="list-style-type: none"> • MSi DuraStem™ recycled VP 	MSi - Material Sales International
<ul style="list-style-type: none"> • 42-inch Navigator™ VP 	Plastic Safety Systems, Inc.
<ul style="list-style-type: none"> • Gemstone Vertical Panel • Minicade VP • Narrowcade VP • SafetyCade VP 	Plasticade
<ul style="list-style-type: none"> • Vertical Panel with crumb rubber base 	Rad-Tec Fabricators, Inc.
<ul style="list-style-type: none"> • TD6000 vertical panel without light • TD6500 Universal Vertical Panel with 32 lb rubber base designed for this device 	Three D Traffic Works, Inc.
<ul style="list-style-type: none"> • VERSA Panel 	Traffic Control Products Group
<ul style="list-style-type: none"> • "Blow Molded" VP • Grabber VP with 30 lb. base 	Traffix Devices, Inc.

E.2. Self-Righting Vertical Panels

A self-righting vertical panel (Figure E-2) is designed to stand back up after an impact.

Figure E-2. Self-Righting Vertical Panel

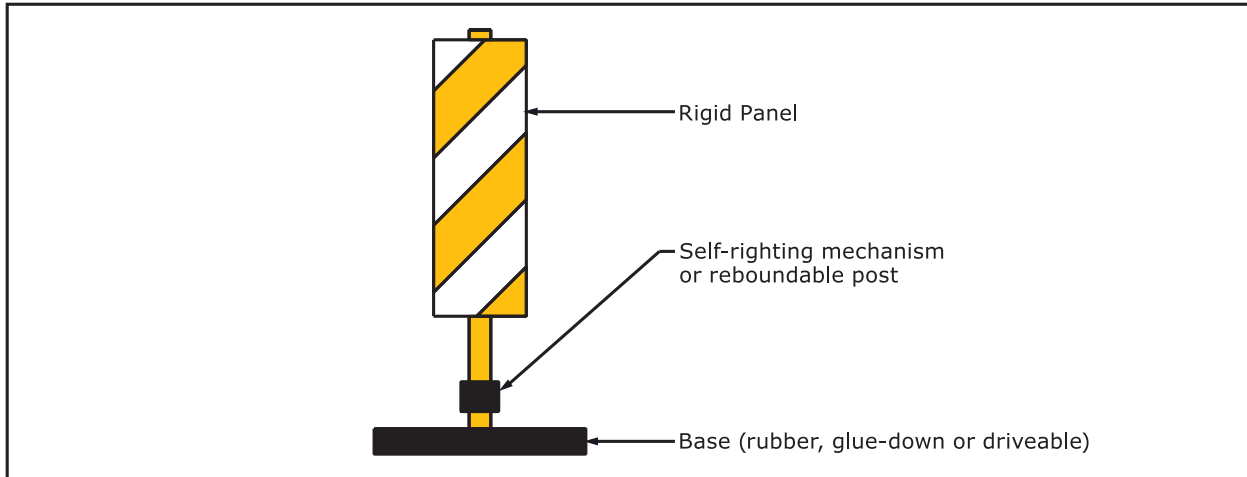


Table E-4. Self-Righting Vertical Panels

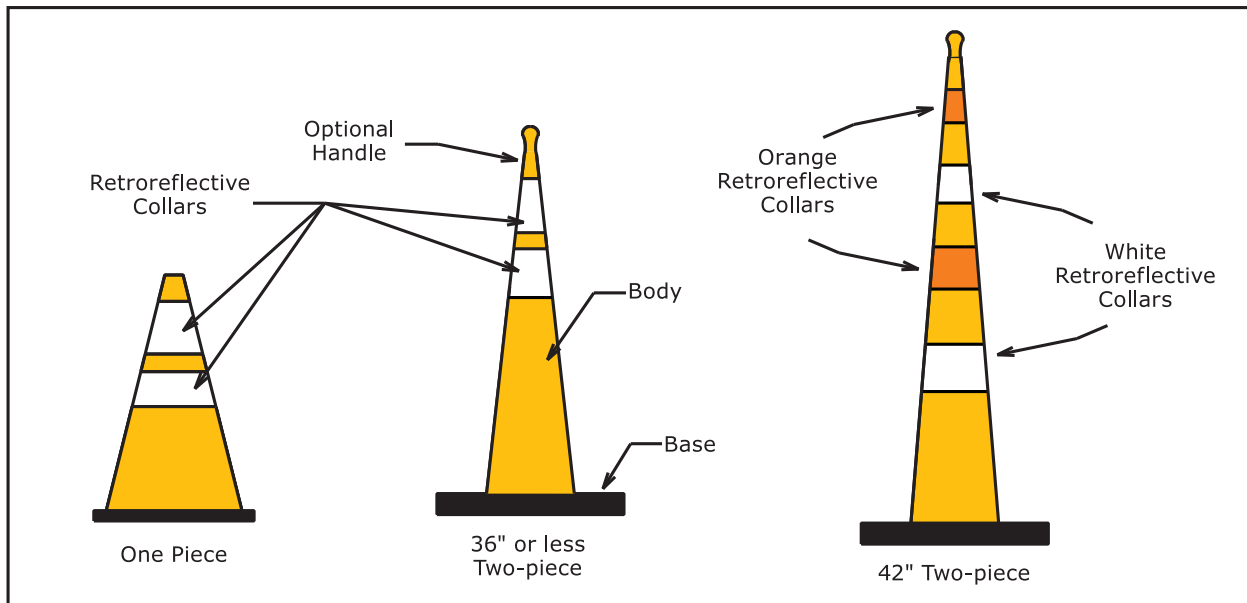
Device	Manufacturer
<ul style="list-style-type: none"> • IRS® self-righting VP <ul style="list-style-type: none"> - May also be purchased with opposing traffic lane divider symbol in lieu of vertical panel. 	IRS® - Impact Recovery Systems, Inc.
<ul style="list-style-type: none"> • Model 52X Vertical Panel • Model 55X Vertical Panel • Model 56X Vertical Panel • Model 54X Opposing Traffic Lane Divider 	Pexco, LLC / Davidson Traffic Control Products
<ul style="list-style-type: none"> • TD5275 Boomerang VP, glued down or bolted down or on 32 lb rubber base <ul style="list-style-type: none"> - May also be purchased with opposing traffic lane divider symbol in lieu of vertical panel. 	Three D Traffic Works, Inc.
<ul style="list-style-type: none"> • H.I.T.M.E. self-righting VP 	Traffic Control Systems
<ul style="list-style-type: none"> • Safe-Hit Reboundable VP 	Valtir, LLC.

F. CONES

Requirements for Cones

- Cones (Figure F-1) shall comply with the requirements of the current *Barricade and Construction Standard Sheets* (BC Sheets) and the current *Texas Manual on Uniform Traffic Control Devices* (TMUTCD).
- Warning lights shall not be attached to cones.
- Cones may be used as channelizing devices for short-term work.
- When used at night, retroreflective striping shall conform to Part 6 of the TMUTCD, which states:
 - “Retroreflectorization of cones that are 28 to 36 inches in height shall be provided by a 6-inch wide white band located 3 to 4 inches from the top of the cone and an additional 4-inch wide white band located approximately 2 inches below the 6-inch band.
 - Retroreflectorization of cones that are more than 36 inches in height shall be provided by horizontal, circumferential, alternating orange and white retroreflective stripes that are 4 to 6 inches wide.
 - Each cone shall have a minimum of two orange and two white stripes with the top stripe being orange.
 - Any non-retroreflective spaces between the orange and white stripes shall not exceed 3 inches in width.”

Figure F-1. One-Piece and Two-Piece Plastic Cones



F.1. One-Piece Cones

Requirements for One-Piece Cones

- One-piece cones must be a minimum of 28 inches tall and weigh a minimum of 9.5 lbs.
- One-piece cones shall not be used at night without dedicated personnel on duty to maintain them.

One-piece cones that meet the requirements above are acceptable from any manufacturer.

F.2. Two-Piece Cones

Requirements for Two-Piece Cones

- 28-inch two-piece cones:
 - Must meet the minimum 9.5 lbs. requirement of the one-piece cones.
 - May **not** be left up unattended overnight.
- 42-inch two-piece cones:
 - Bases must weigh at least 30 lb.
 - May be left up unattended overnight.

Table F-1. Two-Piece Cones (28-inch)

Device	Manufacturer
• Channelizer Cones	Cortina Safety Products
• 28-inch Navigator™	Plastic Safety Systems, Inc.
• 28-inch Grabber Cone	TraFFix Devices, Inc.

Table F-2. Two-Piece Cones (42-inch)

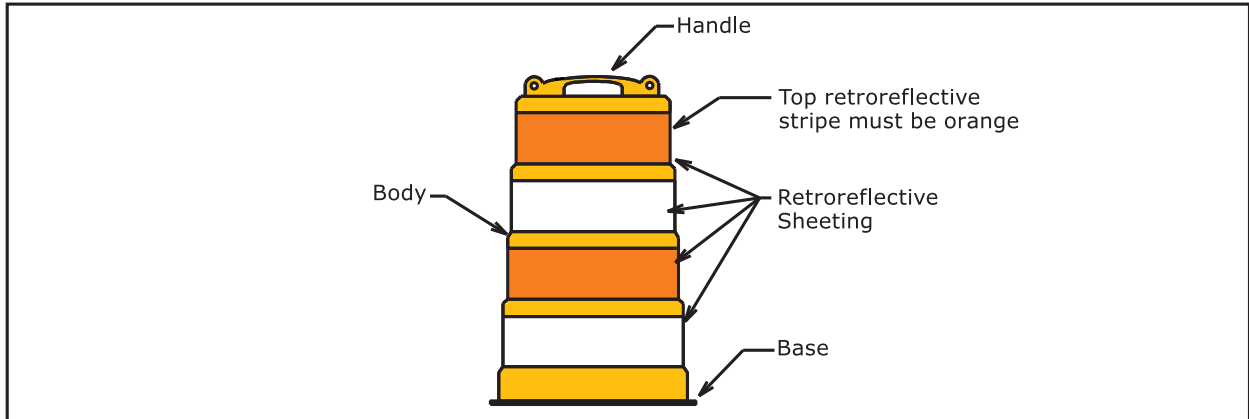
Device	Manufacturer
• T-Top Stackable Channelizer with rubber base • 42 inch Tear Drop Stackable Channelizer TDSC-42	Bent Mfg. Co. BDAA Inc.
• Channelizer Cones	Cortina Safety Products
• Stacking Cone 4800 with 30 lb. base	Custom-Pak, Inc.
• Ring Top Stacking Cone 4800 Series with 30 lb. base	Eastern Metal Signs & Safety
• Divertor	Lakeside Plastics, Inc.
• 42-inch Navigator™	Plastic Safety Systems, Inc.
• 42" Navicade Channelizing Device • 42" C-42 Channelizer Cone	Plasticade
• TD7000 • TD7500 Ringtop Slim-line channelizer cone	Three D Traffic Works, Inc.
• 42-inch Grabber Cone • 42-inch Looper Cone	TraFFix Devices, Inc.

G. PLASTIC DRUMS

Requirements for Plastic Drums

- Plastic Drums (Figure G-1) shall comply with the requirements of the current *Barricade and Construction Standard Sheets* (BC Sheets) and the current *Texas Manual on Uniform Traffic Control Devices* (TMUTCD).

Figure G-1. Plastic Drum



G.1. Plastic Drums

Table G-1. Plastic Drums

Device: Plastic Drums	Manufacturer
<ul style="list-style-type: none"> • Superdome (LDPE or HDPE) Drum with one of the following: <ul style="list-style-type: none"> - Plastic snap-on base (uses sandbags or Bent delineator bases for ballast) - 40 lb. rubber snap-on base • Superdome Tire Ring (SDTR) Drum with recycled truck tire sidewall base 	Bent Mfg. Co. BDAA Inc.
<ul style="list-style-type: none"> • Highway Tech Drum # 03-780-4HI • Highway Tech Drum # 03-780-6HI • Highway Tech Drum # 03-782-4HI • Highway Tech Drum # 03-782-6HI • Trail Boss • Model 1500 (LDPE) or Model 1510 (HDPE) Drum with one of the following: <ul style="list-style-type: none"> - Plastic snap-on base - 40 lb. solid rubber base 	Cortina Safety Products
<ul style="list-style-type: none"> • RoadMax Traffic DRUM-4-6-6100-MAX with recycled truck tire sidewall base • RoadMax Traffic DRUM-4-4-6100-MAX with recycled truck tire sidewall base • RoadMax Traffic DRUM-4-4-HI-MAX with recycled truck tire sidewall base • RoadMax Traffic DRUM-4-6-HI-MAX with recycled truck tire sidewall base 	Eastern Metal Signs & Safety
<ul style="list-style-type: none"> • THE DIRECTOR with 40 lb rubber base 	Lakeside Plastics, Inc.
<ul style="list-style-type: none"> • Lifeguard® Channelizer with recycled truck tire sidewall base • Lifeguard II ® 	Plastic Safety Systems, Inc.

Device: Plastic Drums	Manufacturer
<ul style="list-style-type: none"> • Rhino Channelizer Drum (HDPE or LDPE) with sand-fillable base or with recycled truck tire sidewall base • Commander Traffic Drum (HDPE or LDPE) with recycled truck tire sidewall base • Econocade II Traffic Drum with recycled truck tire sidewall base • Plastic Safety Barrel • Lane Changer Traffic Drum B500LC with one of the following: <ul style="list-style-type: none"> - 40 lb. rubber base - Recycled truck tire sidewall base 	Plasticade
<ul style="list-style-type: none"> • LD10 with plain base 	Radiator Specialty Company
<ul style="list-style-type: none"> • Traffic Control Barrel 	Traffic Product, LLC
<ul style="list-style-type: none"> • 18000-HDPE or 18000-LDPE with one of the following: <ul style="list-style-type: none"> - Sand bag snap-on base - San-Fil® snap-on base - 40 lb. rubber snap-on base - Recycled truck tire sidewall base 	Traffix Devices, Inc.

G.2. Sign Substrates for Plastic Drums

Table G-2. Sign Substrates for Plastic Drums

Device	Manufacturer
<ul style="list-style-type: none"> • Coroplast 10mm extruded thinwall fluted plastic sheet <ul style="list-style-type: none"> - Internal ribs should run vertically. • Coroplast extruded thinwall fluted plastic sheet, 4mm (and thicker) <ul style="list-style-type: none"> - For use as substrate for Warning Reflector only. 	Coroplast, Inc.
<ul style="list-style-type: none"> • IntePro® 10mm extruded thinwall fluted plastic sheet <ul style="list-style-type: none"> - Internal ribs should run perpendicular to support. 	Inteplast Group Ltd.
<ul style="list-style-type: none"> • Fiberglass reinforced polycarbonate sign substrate, 5/32-inch thick • ABS acrylic 	International Plastics Corporation
<ul style="list-style-type: none"> • Endurance™ Sign 	Reflexite Corporation
<ul style="list-style-type: none"> • Polyplate® Fiberglass reinforced plastic sign panel, 0.135-inch thick 	Sequentia Incorporated
<ul style="list-style-type: none"> • Fiber-Brite sign panel, 1/8-inch thick • Survivor • Coro-Lite Corrugated FRP Sign Panel, 0.25 inches thick 	U.S. Highway Products

H. SIGNS AND SIGN SUPPORTS

Requirements for Signs and Sign Supports

- Signs and sign supports shall comply with the requirements of the current *Barricade and Construction Standard Sheets* (BC Sheets) and the *Texas Manual on Uniform Traffic Control Devices* (TMUTCD).
- Sign supports that are approved for long-term or intermediate-term work may also be used for short-term or short-duration work.
- All signs used at night and all regulatory signs (used at any time) must be mounted 7 feet above the edge of the travel way (Figure H-1).
- Non-regulatory signs used only during the day may be mounted at either the 7- or 1-foot mounting height (Figure H-1 and Figure H-2).
- All signs used shall be retroreflective according to the requirements of the BC Sheets.
- Sign supports shall be used with the appropriate foundation system.

Figure H-1. Long-Term, Intermediate-Term, and Regulatory Sign Mounting

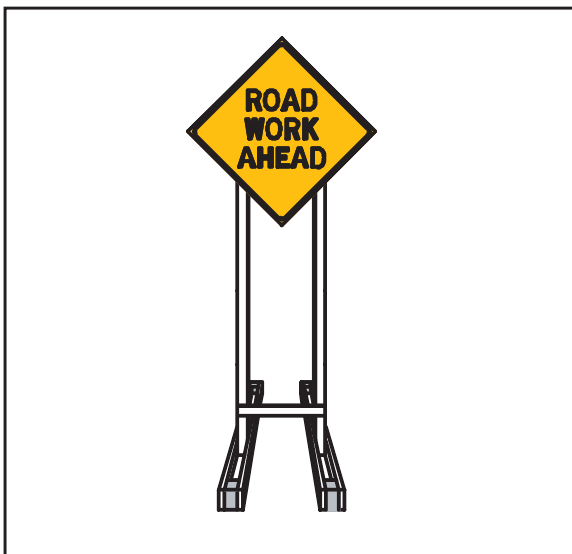


Figure H-2. Short-Term and Short-Duration Sign Mount (Daytime and Non-Regulatory Sign Use Only)



H.1. Permanent Sign Supports

Refer to TxDOT's *Sign Mounting Details Standard Sheets* (SMD Sheets).

H.2. Long-Term/Intermediate-Term Sign Supports

Requirements for Long/Intermediate-Term Sign Supports

- Signs shall be installed in accordance with manufacturer's instructions.
- The height of the non-breakaway portion of the support (i.e., stub) shall not, in any case, extend higher than 4 inches from the ground.

H.2.a. Portable Sign Supports (Long/Intermediate-Term)

Table H-1. Generic Portable Sign Supports (Long/Intermediate-Term)

Design	Requirements
Wood dual leg, skid mounted	<ul style="list-style-type: none"> • The skid length shall be at least 60 inches in length. • Skid length may be increased for wind conditions if space permits (see BC Sheets for assembly details).
Wood H-leg, skid mounted (Figure H-3)	<ul style="list-style-type: none"> • The skid length shall be at least 60 inches in length. • Skid length may be increased for wind conditions if space permits.

Figure H-3. Wood Single Leg H-Leg Sign Support (Long/Intermediate-Term)

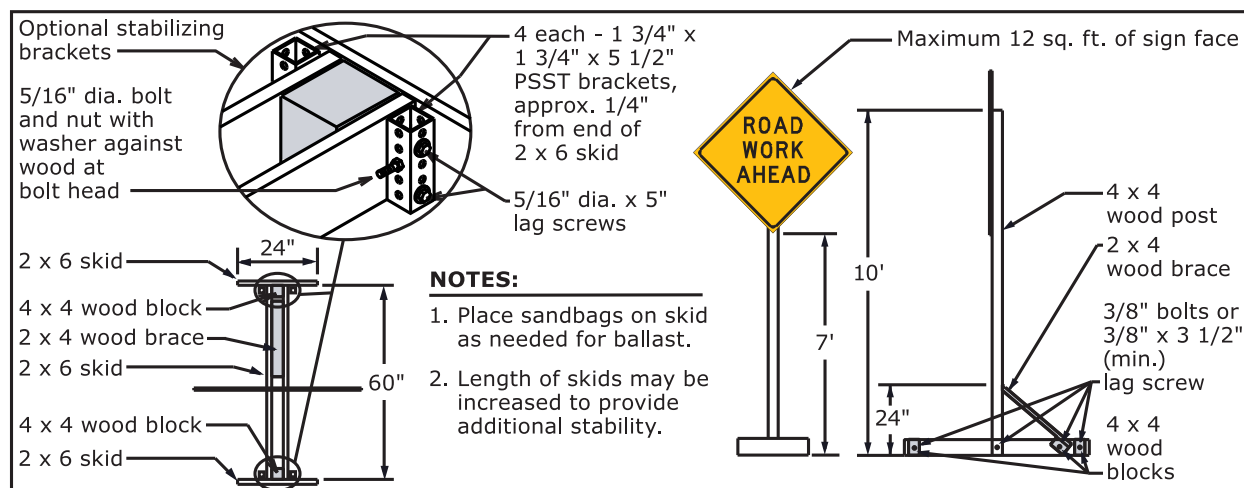


Table H-2. Portable Sign Supports (Intermediate-Term)

Device	Manufacturer
<ul style="list-style-type: none"> • SZ-484-2S Stand for 0.080 aluminum, 3mm and 4mm aluminum composites, roll-up, 10mm and 16mm corrugated plastic substrates 	Bone Safety Signs
<ul style="list-style-type: none"> • QV-84 (or SE-7) Stand 	Cortina Safety Products
<ul style="list-style-type: none"> • DF-4700 Stand for roll-up signs • DF-4700TX Stand for roll-up signs • TF84-RGB Sign Stand for Rigid Signs • TF84-RUB Sign Stand for Rollup Signs 	Dicke Tool Company
<ul style="list-style-type: none"> • X-601 Aluminum Interstate™ Series stand for roll-up signs • Apex Summit for aluminum signs 	Eastern Metal Signs & Safety
<ul style="list-style-type: none"> • SS 560 • SS 560 A • SS 560 UCA for roll-up signs only 	Korman Signs, Inc.
<ul style="list-style-type: none"> • 4860K 	MDI - Marketing Displays International
<ul style="list-style-type: none"> • SS520A tall double spring sign stand • SS620A heavy duty tall double spring sign stand 	Plasticade
<ul style="list-style-type: none"> • Big Buster™ sign stand 	TraFFix Devices, Inc.

Table H-3. Components of Sign Supports (Long/Intermediate-Term)

Device	Manufacturer
Perforated Square Steel Tubing (PSST)	<ul style="list-style-type: none"> • Atkore (F.K.A. Allied Tube & Conduit) • Maxistrut, Inc. • S-Square Tube Products • Ultimate Highway Solutions • Valtir, LLC.

Figure H-4. PSST Single Leg Skid Sign Support (Long/Intermediate-Term)

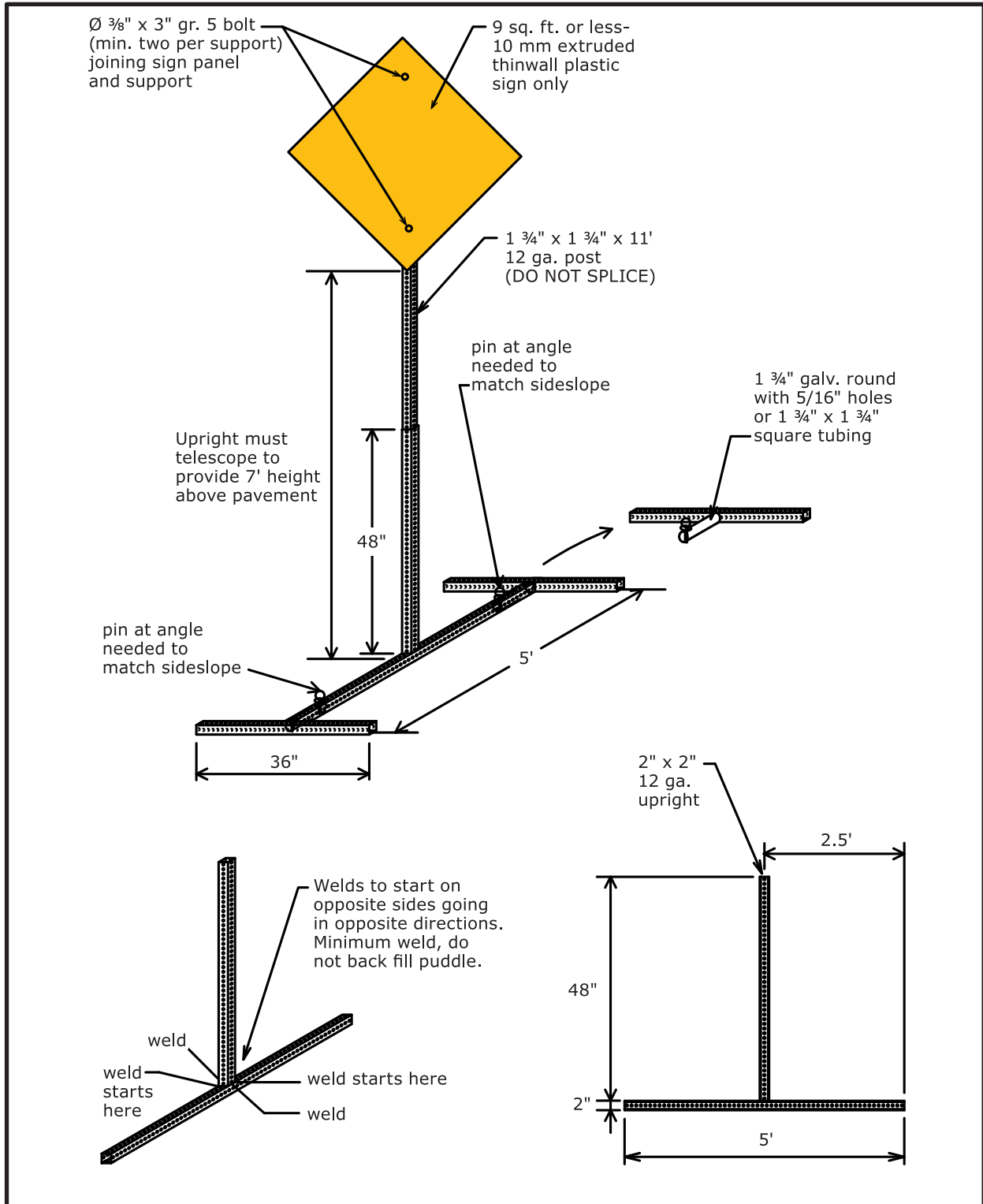
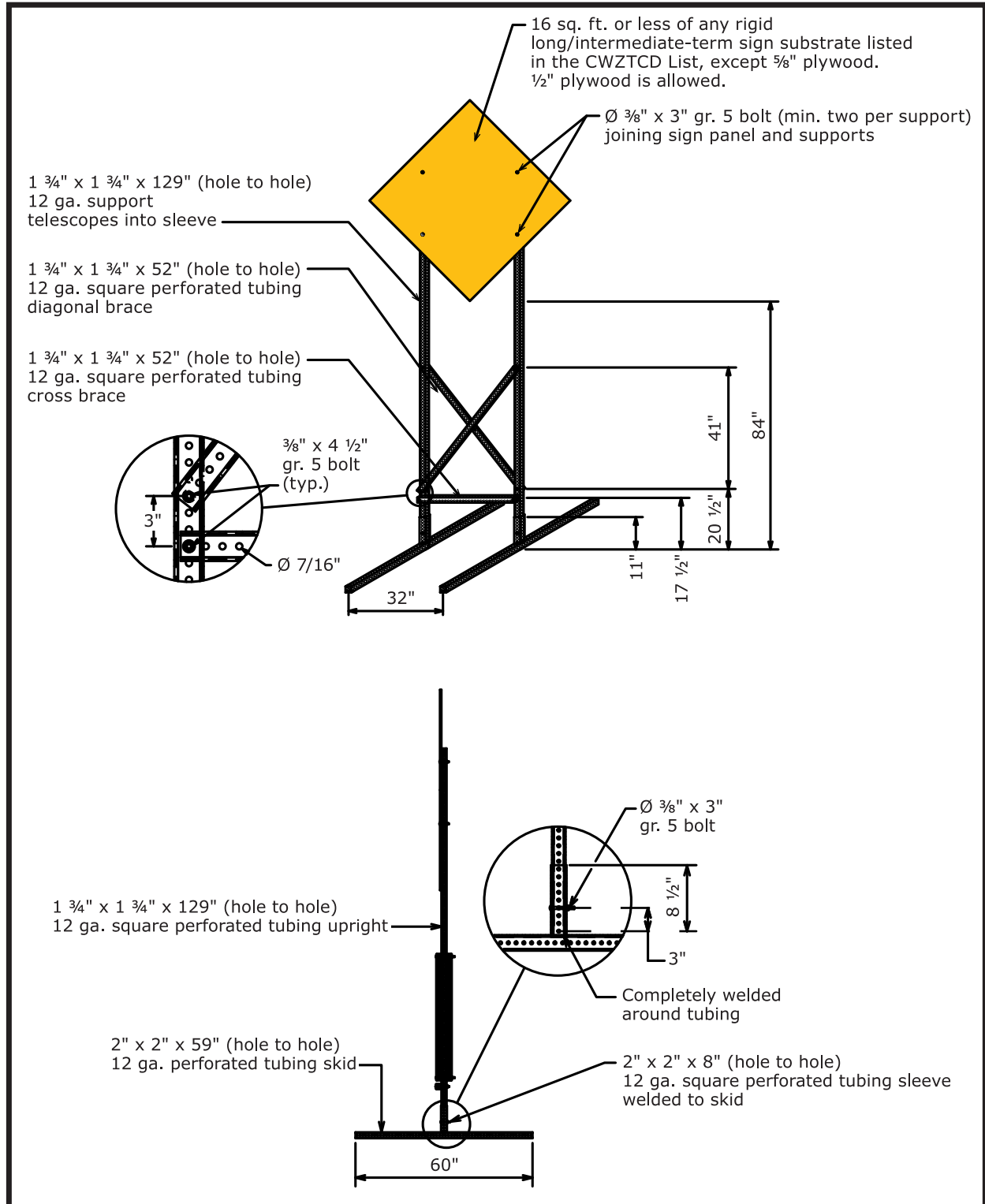


Figure H-5. PSST Dual Leg Skid Sign Support (Long/Intermediate-Term)



H.2.b. Post-Type Sign Supports (Long/Intermediate-Term)

Table H-4. Post-Type Sign Supports (Long/Intermediate-Term)

Device: Post-Type Sign Supports (Long/Intermediate-Term)	Manufacturer
<ul style="list-style-type: none"> • Quick-Punch® <ul style="list-style-type: none"> - 14-gauge 2-inch square tubing with 7/16-inch die-cut knockouts on 1-inch centers. - This support may be directly embedded a minimum of 48 inches in both weak and strong soils. - As an option, an anchor stub may be used. The anchor stub is the next larger size tubing (2-1/4 inch). The optional anchor stub, when used, shall be embedded at least 34 inches in strong soils or 55 inches in weak soils with approximately 1 inch protruding above the ground (Figure H-6). - Additionally, an 18-inch reinforcing sleeve made from the next larger size tubing (2-1/2 inch) may be used. - Both systems may also be set in concrete, soilcrete, or approved expanding polyurethane foam. - No more than 2 posts shall be installed within a 7-foot span. 	<ul style="list-style-type: none"> • Atkore (F.K.A. Allied Tube & Conduit)

Device: Post-Type Sign Supports (Long/Intermediate-Term)		Manufacturer	
<ul style="list-style-type: none"> • Square metal tubing with 7/16-inch holes punched on 1-inch centers <ul style="list-style-type: none"> - This support may be directly embedded a minimum of 48 inches in both weak and strong soils (Option 1). - As an option, an anchor stub may be used. The anchor stub is the next larger size tubing (Option 2). The optional anchor stub, when used, shall be embedded at least 34 inches in strong soils or 55 inches in weak soils with approximately 1 inch protruding above the ground (Figure H-6). - Additionally, an 18-inch reinforcing sleeve made from the next larger size tubing may be used (Option 3). - Any approved sign substrate from Section H.2.c may be used on square metal tubing supports when embedded as per Figure H-6. - Both systems may also be set in concrete, soilcrete, or approved expanding polyurethane foam. The posts may be mounted according to the following table: 		<ul style="list-style-type: none"> • Atkore (F.K.A. Allied Tube & Conduit) • Maxistrut, Inc. • S-Square Tube Products • Ultimate Highway Solutions • Valtir, LLC 	
Number of Posts in 7 ft Span	14 Gauge		12 Gauge
1 post (directly embedded)	1 ³ / ₄ , 2, or 2 ¹ / ₄ inch		1 ¹ / ₂ , 1 ³ / ₄ , or 2 inch
2 posts (directly embedded)	1 ³ / ₄ or 2 inch		1 ¹ / ₂ or 1 ³ / ₄ inch
1 post (with anchor)	1 ³ / ₄ , 2, or 2 ¹ / ₄ inch		1 ¹ / ₂ , 1 ³ / ₄ , 2, or 2 ¹ / ₄ inch
2 post (with anchor)	1 ³ / ₄ or 2 inch		1 ¹ / ₂ , 1 ³ / ₄ , or 2 inch
3 post (with anchor)	1 ³ / ₄ inch		1 ¹ / ₂ or 1 ³ / ₄ inch

Device: Post-Type Sign Supports (Long/Intermediate-Term)	Manufacturer
<ul style="list-style-type: none"> • Base-bolted sign post system using Franklin Flanged Channel (Figure H-7) <ul style="list-style-type: none"> - Only one 4.0 lb/ft or up to three 2.0, 2.5, or 3.0 lb/ft posts may be installed within a 7-foot span. - Posts must be embedded a minimum of 38 inches in strong soil or 60 inches in weak soil. - When installed in weak soil, soil plate supplied by manufacturer must be used. 	<ul style="list-style-type: none"> • Franklin Industries
<ul style="list-style-type: none"> • CP40 composite post, 2-3/8, 2-7/8, or 4 inch outside diameter <ul style="list-style-type: none"> - Manufactured of unsaturated polyester or epoxy resin reinforced with E-glass and filled with a filler material to give the posts a strength equal to that of Schedule 40 steel pipe of equal diameter. - Post shall be used only in strong soil and shall be embedded a minimum of 45 inches. - No more than 2 posts may be installed in a 7-foot span. - Post may be directly embedded or set in concrete, soilcrete, or approved expanding polyurethane foam. 	<ul style="list-style-type: none"> • Lancaster Composite

Device: Post-Type Sign Supports (Long/Intermediate-Term)	Manufacturer
<ul style="list-style-type: none"> • Lap Splice™ U-Channel Breakaway System using either 3.0 lb/ft or 4.0 lb/ft Rib-Bak U-Channel Posts (Figure H-7) <ul style="list-style-type: none"> - No more than 3 posts shall be mounted within a 7-foot span. - The post shall be embedded into the ground a minimum of 36 inches. - This support may be directly embedded in both weak and strong soils, however if the 4.0 lb/ft is used in weak soil, a soil plate must be used. • Slip Safe™ U-Channel Slip Base System using either 3.0 lb/ft or 4.0 lb/ft Rib-Bak U-Channel Posts mounted as single post or back-to-back post supports <ul style="list-style-type: none"> - No more than 3 supports shall be mounted within a 7-foot span. - This support may be directly embedded in both weak and strong soils, however in weak soil, the post shall be embedded into the ground a minimum of 30 inches and a soil plate must be used. 	<ul style="list-style-type: none"> • Nucor Steel Marion, Inc.
<ul style="list-style-type: none"> • NEX™ 12 or 14-gauge 2-inch “octagonal” tubing. <ul style="list-style-type: none"> - This support may be directly embedded a minimum of 36 inches in both weak and strong soils. - As an option, an anchor stub may be use. - The anchor system utilizes a 2-1/2 inch square tube at least 34.5 inches in length and wedge. - This system may also be set in concrete, soilcrete, or approved expanding polyurethane foam. - No more than 2 posts shall be installed within a 7-foot span. 	<ul style="list-style-type: none"> • S-Square Tube Products

Device: Post-Type Sign Supports (Long/Intermediate-Term)	Manufacturer
<ul style="list-style-type: none"> • V-Loc™ Socket System <ul style="list-style-type: none"> - This system may be used to anchor thin-wall round tubing and 2-inch square tubing in standard soil. - With an adapter, the anchor can also be used with U-channel. - The anchor shall be driven flush with the ground (30-inch embedment depth). - The anchor may also be set in concrete or expanding polyurethane foam. 	<ul style="list-style-type: none"> • TAPCO - Traffic & Parking Control Co.
<ul style="list-style-type: none"> • Fiberglass reinforced plastic (FRP) pipe <ul style="list-style-type: none"> - May be directly embedded or may be anchored with the Universal Anchor System. - No more than 2 posts shall be installed within a 7-foot span. - The anchor, if used, should be set in concrete, or expanding polyurethane foam. - Anchor shall protrude no more than 4 inches from the ground. - As an option, the post (without the anchor) may be set in concrete, soilcrete, or approved expanding polyurethane foam. 	<ul style="list-style-type: none"> • Texas Corrugators (formerly HWYCOM) • Universal Anchor Systems, LLC
<ul style="list-style-type: none"> • Tubing, circular metal, 2-3/8 inches diameter with 0.080 or 0.095 inch wall thickness (a.k.a. thin wall) used with Poz-Loc Wedge and Socket Foundation <ul style="list-style-type: none"> - Socket may be used as drivable base in strong and weak soil, and it may be set in concrete or approved expanding polyurethane foam. • S-Q Post Square Slipbase Sign Support System <ul style="list-style-type: none"> - May be installed using the same foundation used by the Texas Triangular Slipbase Sign Support System. - Refer to SMD (SLIP-1) or manufacturer recommendations for installation procedures. • Poz-Loc Socket (Steel) System (#720745g) 	<ul style="list-style-type: none"> • Valtir, LLC

Device: Post-Type Sign Supports (Long/Intermediate-Term)	Manufacturer
<ul style="list-style-type: none"> • Figure Appendix A-1. Type 2 Portable Concrete Traffic Barrier (PCTB) Sign Support Assembly <ul style="list-style-type: none"> - This system uses Schedule 80 pipe to support signs at 7' high by connecting the upright at the connection point between two 30' Type 2 Portable concrete barriers. - Necessary details for fabrication of this system are located in Appendix A of this document. 	<ul style="list-style-type: none"> • N/A

Figure H-6. PSST Ground Mounted Sign Support with Anchor (Long/Intermediate-Term)

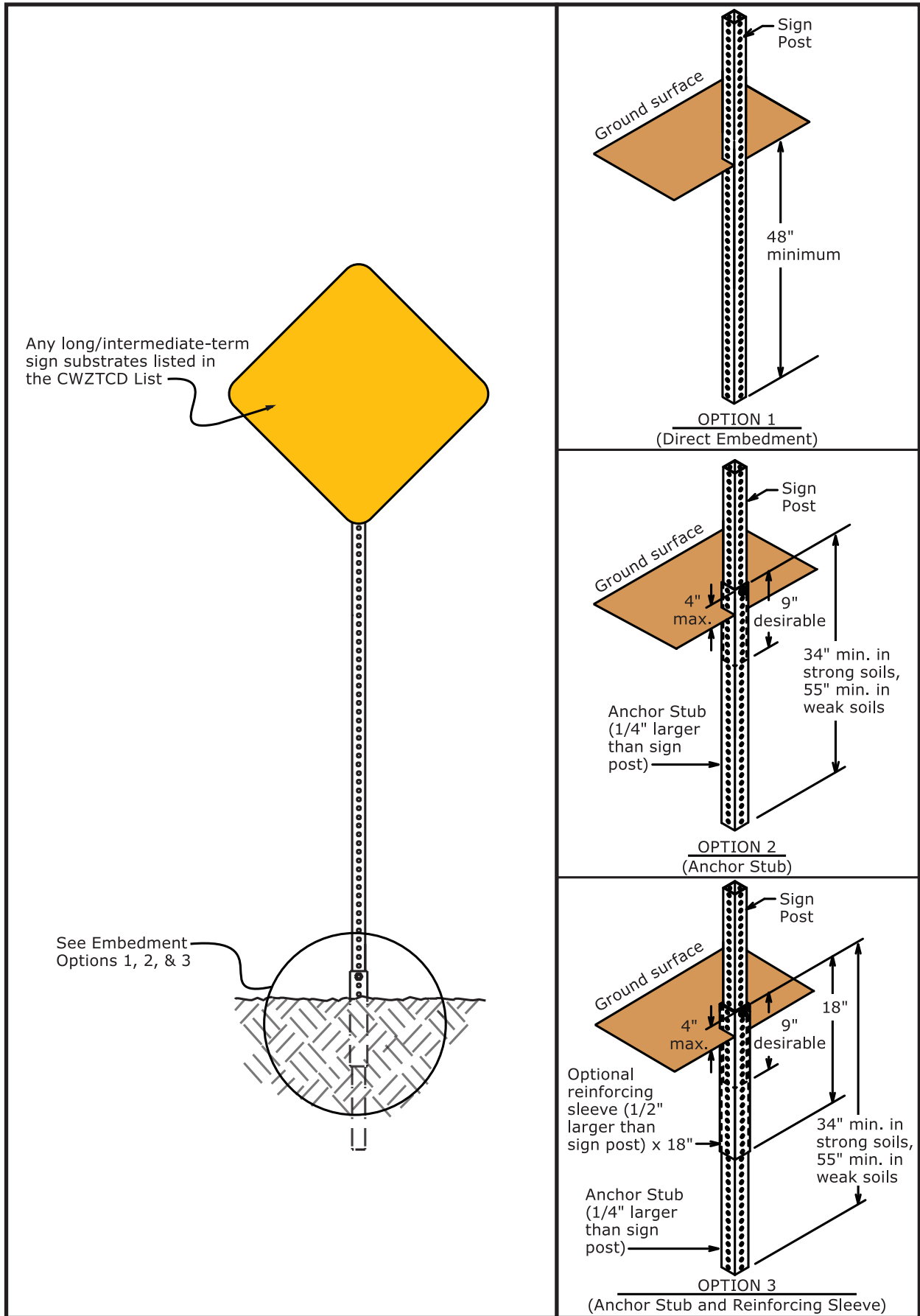
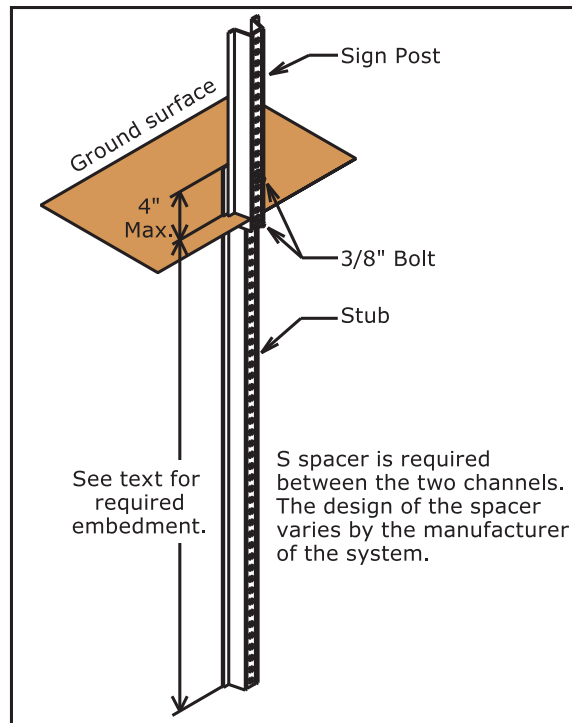


Figure H-7. Ground Mounted U-Channel with Anchor



H.2.c. Sign Substrates for Long/Intermediate-Term Sign Supports

Any of the following substrates may be used on long-term/intermediate-term sign supports except where specifically noted or where a manufactured sign support would require user modification to allow the use of the substrate.

Table H-5. Generic Sign Substrates for Long/Intermediate-Term Sign Supports

Device	Requirements
Plywood	1/2 or 5/8-inch thick <ul style="list-style-type: none"> • Marine grade, CCA pressure treated, CDX or similar plywood with water resistant glue. • Paint all wood surfaces white if not covered by reflective sheeting.
Sheet Aluminum	Conform to <i>DMS-7110, Aluminum Sign Blanks</i>
Roll-Up Signs	Conform to <i>DMS-8310, Flexible Roll-Up Reflective Signs</i>

Table H-6. Sign Substrates for Long/Intermediate-Term Sign Supports

Device	Manufacturer
<ul style="list-style-type: none"> • Dibond, 2mm thick composite substrate 	Alcan Composites USA Inc.
<ul style="list-style-type: none"> • Bone Light ACM, 3mm and 4mm composite 	Bone Safety Signs
<ul style="list-style-type: none"> • Coroplast 10mm and 16mm extruded thinwall fluted plastic sheet <ul style="list-style-type: none"> - Internal ribs should run perpendicular to support. 	Coroplast, Inc.
<ul style="list-style-type: none"> • EcoStrate (E5) Composite traffic sign blanks 0.25" 	EcoStrate SFS, Inc.
<ul style="list-style-type: none"> • IntePro® 10mm and 16mm extruded thinwall fluted plastic sheet <ul style="list-style-type: none"> - Internal ribs should run perpendicular to support. • InteCell® 13 to 16mm integral skin expanded foam PVC sheet 	Inteplast Group Ltd.
<ul style="list-style-type: none"> • Alpollic® composite sign substrate 	Mitsubishi Chemical
<ul style="list-style-type: none"> • Endurance™ Sign 	Reflexite Corporation
<ul style="list-style-type: none"> • Reynobond PE, 3 to 6mm thick composite substrate • Reynolite, 2mm thick composite substrate 	Reynolds Metal Company
<ul style="list-style-type: none"> • Polyplate® Fiberglass-Reinforced Plastic Sign Panel, 0.135 inches thick 	Sequentia Incorporated
<ul style="list-style-type: none"> • Coro-Lite Corrugated FRP Sign Panel, 0.25 inches thick • Fiber-Brite Fiberglass-Reinforced Plastic Sign Panel, 0.135 inches thick 	US Highway Products, Inc.

H.3. Short-Term/Short-Duration Sign Supports

H.3.a. Portable Sign Supports (Short-Term/Short-Duration)

Figure H-8. Wood & HPPL H-Leg Sign Support (Short-Term/Short-Duration)

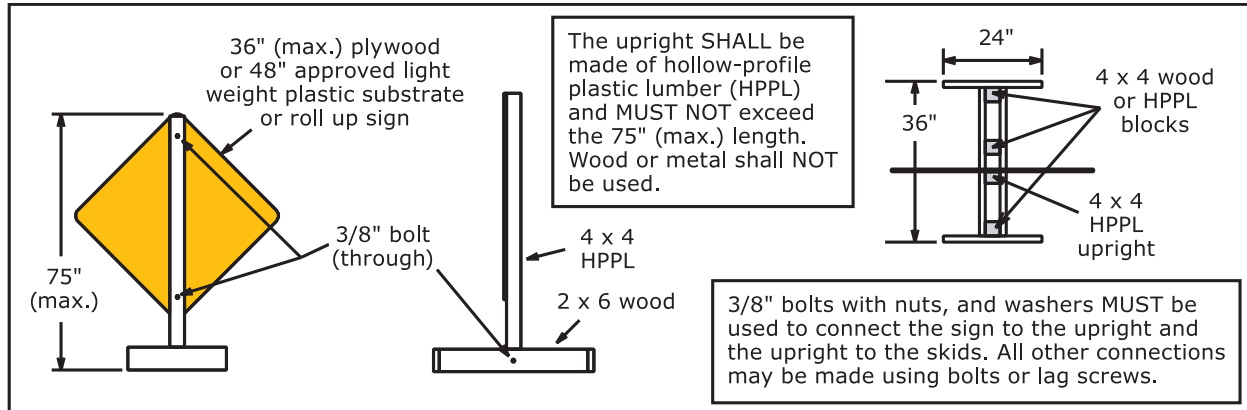


Figure H-9. Barricades Unlimited Sign Support (Short-Term/Short-Duration)

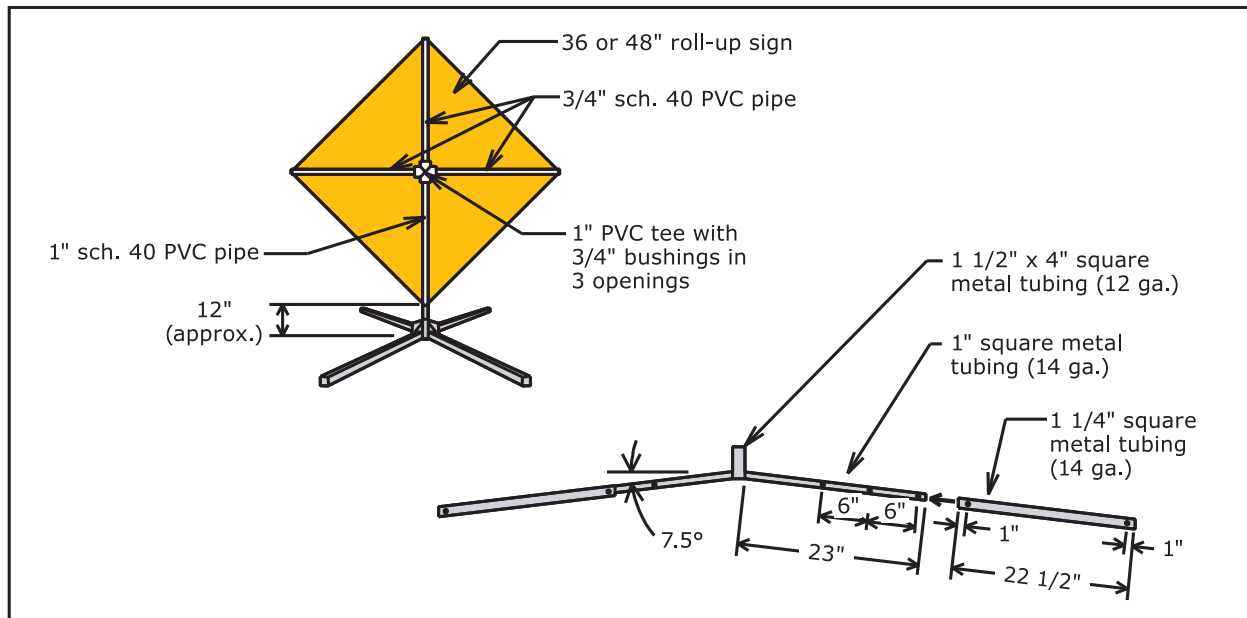


Figure H-10. JB Witt PVC Sign Support (Short-Term/Short-Duration)

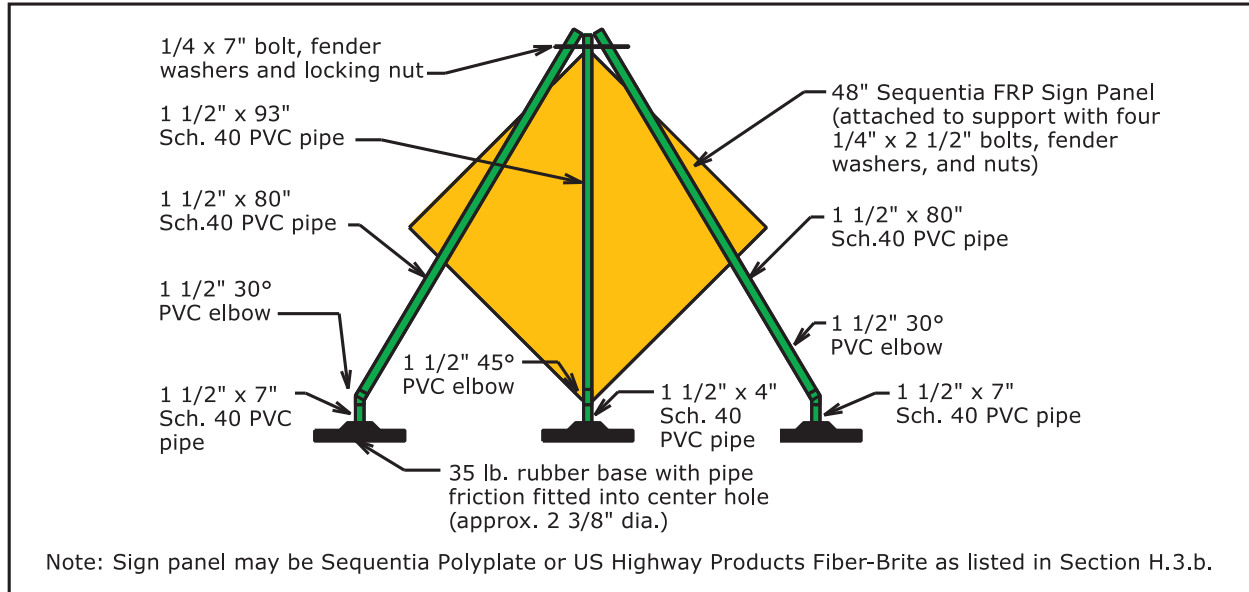


Figure H-11. H-Leg Sign Support (Short-Term/Short-Duration)

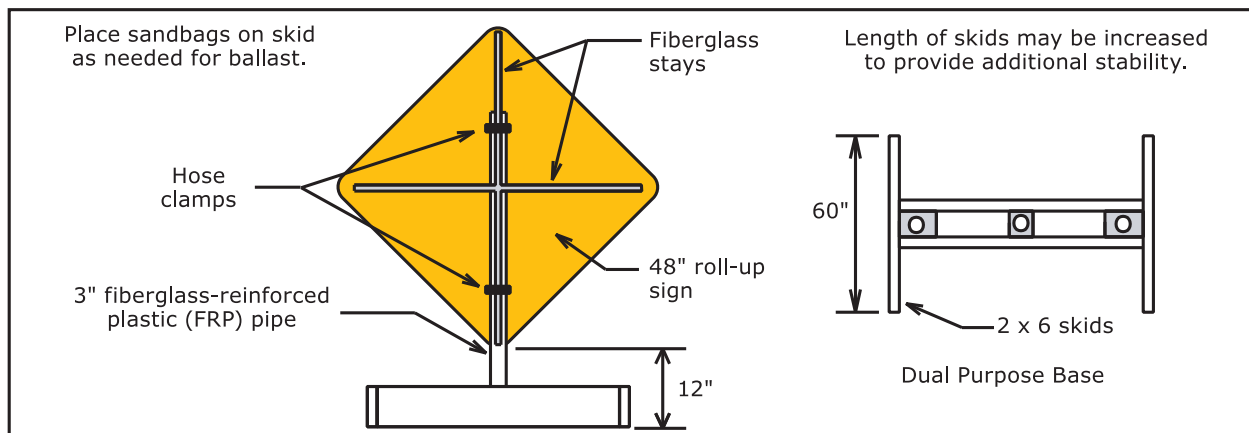


Table H-7. Portable Sign Supports (Short-Term/Short-Duration)

Device: Portable Sign Supports (Short-Term/Short-Duration)	Manufacturer
<ul style="list-style-type: none"> • H-leg sign support (Figure H-8) <ul style="list-style-type: none"> - This is the only short-term/short-duration sign support for which plywood may be used as a sign substrate. - The plywood shall be 36 inches square by 1/2-inch thick. - Slight variations to this support are not considered crashworthy. Strict adherence to the dimensions shown in Figure H-8 is required. 	N/A
<ul style="list-style-type: none"> • FRC786 Single Spring Tilt-Adjust Roll-up Sign Stand • FRC750 Springless Tilt-Adjust Roll-up Sign Stand 	AccuForm Signs
<ul style="list-style-type: none"> • Sign support (Figure H-9) 	Barricades Unlimited
<ul style="list-style-type: none"> • SZ-412 and SZ-412-S Stands for roll-up signs • SZ-412-2S Stand for 48" x 48" x .080" aluminum, 4mm or thinner aluminum composite material, corrugated plastic, extruded plastic, vinyl roll-up signs • SZ-484 Stand for roll-up signs • SZ-RBS Stand for roll-up signs 	Bone Safety Signs
<ul style="list-style-type: none"> • Quadra Flex V™ Model QFV • Quadra Flex V™ Model QFV-W • Quadra Lite V™ Model QLV • Quadra Lite V™ Model QLV-W 	Cortina Safety Products
<ul style="list-style-type: none"> • DL1000W Stand for roll-up signs • DL1003W Stand for roll-up signs • DF3000S Fold & Roll Stand for roll-up signs • DF3000W Stand for roll-up signs • DF3003W Stand for roll-up signs • SDL1000L Stand for roll-up signs • TF-12C Stand for roll-up signs • TF-12W Stand for roll-up signs • TF-18 Stand for 0.080" Aluminum, Endurance, Alpolic and roll-up signs • UF2000 Stand for roll-up signs 	Dicke Tool Company

Device: Portable Sign Supports (Short-Term/Short-Duration)	Manufacturer
<ul style="list-style-type: none"> • Apex Stand for roll-up signs • Apex Recoil for roll-up signs • Apex Dual Recoil Max for roll-up signs • Apex Tripod for plywood signs • C-102 High Performance Stand for roll-up signs • C-202 Steel Super-Flex Compact Stand for roll-up signs • C-301 Steel Compact C-Stand for roll-up signs • C-601 Aluminum Compact C-Stand for roll-up signs • C-801 Aluminum Compact C-Stand for roll-up signs • E-350 Econo Stand for Endurance™, 10mm Coroplast, or 10mm IntePro® substrates (see Section H.3.b). • (Internal ribs should run perpendicular to support.) • 2.0mm (.080") aluminum (48" x 48" or smaller), 6.35mm solid ABS plastic (48" x 48" or smaller), 2mm or smaller Alusuisse Dibond, Mitsubishi Alpolc, Reynolds Reynolite or equal AL/LDPE laminated. • E-380 Econo Stand for roll-up signs • C-902 Aluminum Super-Flex Compact Stand for roll-up signs • C-942 Aluminum Super-Flex Compact Stand for roll-up signs • X-501 Aluminum Interstate™ Series Stand for roll-up signs • X-551 Steel Interstate™ Series Stand for roll-up signs and the Work Area Protection Part #48SB high-density polyethylene 0.625" thick (Work Area Protection Corp.) • X-552 Steel Interstate™ Series Stand for Endurance™, 10mm Coroplast, or 10mm IntePro® substrates (see Section H.3.b), • 2.0mm (.080") aluminum (48" x 48", 48" x 60" or smaller), or 2mm AL/LDPE laminated, or Alcan Dibond 2 mm and the Work Area Protection Part #48SB high-density polyethylene 0.625" thick (Work Area Protection Corp.) 	<p style="text-align: center;">Eastern Metal Signs & Safety</p>

Device: Portable Sign Supports (Short-Term/Short-Duration)	Manufacturer
<ul style="list-style-type: none"> • X-602 Aluminum Interstate™ Series stand for Endurance™, 10mm Coroplast, or 10mm IntePro® substrates (see Section H.2.c). • 48" x 48", 48" x 60" or smaller, 2.0mm (.080") aluminum, 6.35mm solid ABS plastic, 2mm AL/LDPE laminated, Alcan Dibond 2mm or 16mm (5/8") plywood and the Work Area Protection Part #48SB high-density polyethylene 0.625" thick (Work Area Protection Corp.) • X-841 Series X-Stand™ for roll-up signs • X-842 Series X-Stand™ for Endurance™, 10mm Coroplast, or 10mm IntePro® or Alcan Dibond 2mm substrates (see Section H.3.b) • MBC-12 and MBC-15 Interstate™ X-Stand Median Barrier Clamp for use with X-501 and X-551 supports on this list 	<p>Eastern Metal Signs & Safety (continued)</p>
<ul style="list-style-type: none"> • IRS® - Part #350 one base portable sign stand with Universal bracket 	<p>IRS® - Impact Recovery Systems, Inc.</p>
<ul style="list-style-type: none"> • PVC sign stand (Figure H-10) with Polyplate (Sequentia Incorporated) or Fiber-bright (US Highway Products, Inc.) sign panel 	<p>JB Witt</p>
<ul style="list-style-type: none"> • SS 1 with roll-up, Alpolic or Alcan Dibond 2mm signs • SS 548, SS 548 A, SS 548 C, or SS 548 CA with roll-up or Alpolic signs • SS 548 UC, SS 548 UCR, SS 548 UCA, or SS 548 UCRA with roll-up signs only • SS548AE, SS548CE, SS548CAE with roll-up or Alpolic signs 	<p>Korman Signs, Inc.</p>
<ul style="list-style-type: none"> • Basic™ 36 Portable Traffic Sign Stand • Basic™ 48 Portable Traffic Sign Stand • CrossWind™ 204-HD Portable Traffic Sign Stand • LTT-1 Portable Traffic Sign Stand using ½" thick MDO plywood at a height of 12" to the bottom of the sign 	<p>Lang Products International, Inc.</p>

Device: Portable Sign Supports (Short-Term/Short-Duration)	Manufacturer
<ul style="list-style-type: none"> • 5012M-NCAM SteelMaster® Stand for roll-up signs • 40CAM SteelMaster® Stand for roll-up signs • 50SM-2S SteelMaster® Stand • 4814M-DLK WindMaster® Stand for roll-up signs • 4814HDK WindMaster® Stand for roll-up signs • 4818K WindMaster® Stand 	MDI - Marketing Displays International
<ul style="list-style-type: none"> • SS100/SS105 tripod sign stand • SS300/SS300A springless sign stand • SS310/SS310A single spring sign stand • SS340A compact double spring sign stand • SS410A medium height springless sign stand • SS420A heavy duty double spring sign stand • SSRB800 rubber base sign stand 	Plasticade
<ul style="list-style-type: none"> • Econo Buster folding leg sign stand • Little Buster™ Stand for roll-up signs • Quad-Drop Sign Stand for roll-up signs • Step'N Drop Stand for roll-up signs • Zepher™ Stand for roll-up signs 	Traffix Devices, Inc.
<ul style="list-style-type: none"> • Econo-Brother sign stand for roll-up signs 	Work Zone Safety Product

H.3.b. Sign Substrates for Short-Term/Short-Duration Sign Supports

Table H-8. Sign Substrates for Short-Term/Short-Duration Sign Supports

Device	Manufacturer
Roll-up signs conforming to <i>DMS-8310, Flexible Roll-Up Reflective Signs</i>	N/A
Coroplast 10mm extruded thinwall fluted plastic sheet <ul style="list-style-type: none"> • Internal ribs should run perpendicular to support. 	Coroplast, Inc.
IntePro® 10mm extruded thinwall fluted plastic sheet <ul style="list-style-type: none"> • Internal ribs should run perpendicular to support. 	Inteplast Group Ltd.
Endurance™ Sign	Reflexite Corporation
Safe Sign 350 rigid plastic sign panel <ul style="list-style-type: none"> • Internal ribs should run perpendicular to support. 	TraFFix Devices, Inc.

Table H-9. Sign Substrates for Use on Short-Term/Short-Duration Sign Supports ONLY WHEN NOTED

Device	Manufacturer
Sheet Aluminum 0.080" thick conforming to <i>DMS-7110, Aluminum Sign Blanks</i>	N/A
Plywood, 1/2-inch thick. <ul style="list-style-type: none"> • Marine grade, CCA pressure treated, CDX or similar plywood with water-resistant glue. • Paint all wood surfaces white if not covered by reflective sheeting. 	N/A
Dibond 2mm composite	Alcan Composites USA Inc.
Bone Light Aluminum Composite Material 3mm or 4mm	Bone Safety Signs
Alpolic® composite sign substrate	Mitsubishi Chemical
Polyplate® Fiberglass Reinforced Plastic Sign Panel, 0.135 inches thick	Sequentia Incorporated
Fiber-Brite sign panel, 1/8-inch thick	U.S. Highway Products

I. TEMPORARY MAILBOXES

Attached to plastic drum as shown on this page and on the *Maintenance Division Mailbox standard drawings* (MB Standards). Temporary mailboxes may be installed on permanent supports as detailed on the MB Standards. MB Standards can be found online at www.txdot.gov/business/disclaim.htm.

Each temporary mailbox shall be mounted on an approved plastic drum (see Section G). Only one #1, #1½, or #2 mailbox may be installed on any one drum. The mailbox shall be mounted using the standard TxDOT mailbox-mounting bracket in the manner shown in Figures I-1, I-2, and I-3.

Figure I-1. Mailbox Bracket to Drum Connection Detail

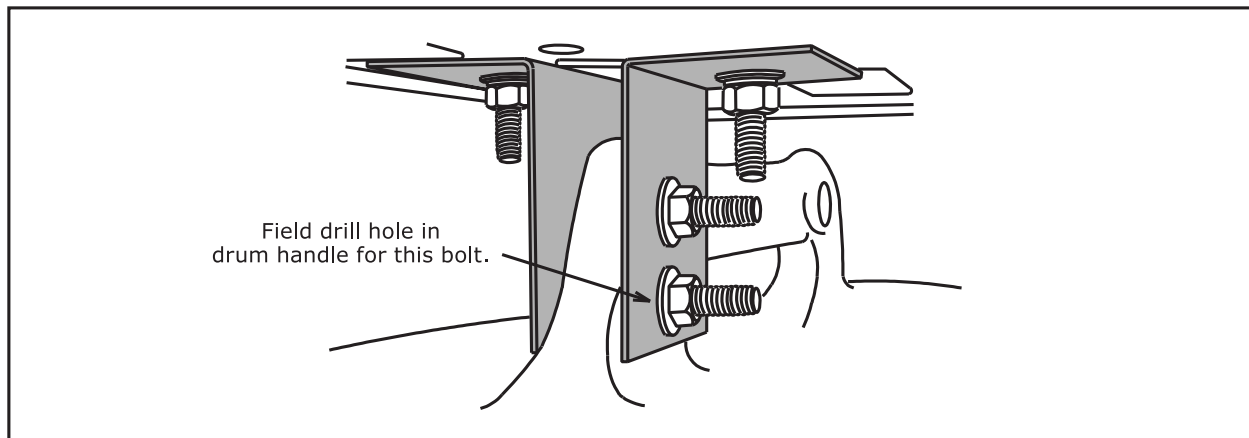
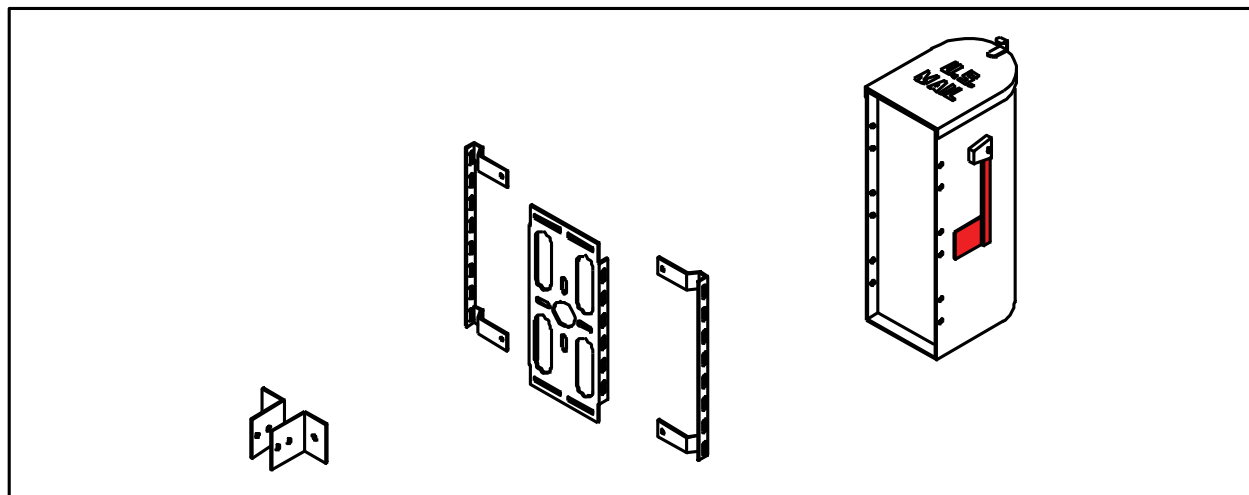


Figure I-2. Mailbox Bracket to Mailbox Connection Detail



The mounting kit consists of a mounting bracket, two angle brackets, and two bracket extenders. No bracket extenders are required for the #1 mailbox. The #1½ and #2 mailboxes require one and two bracket extenders, respectively. The bracket and components are constructed of 14-gage galvanized steel. Any components whose strength appears to be compromised due to rusting or corrosion shall not be used.

The bracket is attached to the mailbox with six 1/4-inch screws with two flat washers and one nut per screw. Screws shall be distributed evenly to maximize the “attached area”.

The bracket extenders are attached to the bracket with two or four 1/4-inch carriage bolts (as required) with a flat washer, a lock washer, and a nut for each bolt.

The angles are attached to the bracket and the drum using 3/8-inch bolts with two flat washers and one nut per bolt.

Bolts and screws shall be of sufficient length, so all threads of the corresponding nut are engaged after installation.

Figure I-3. Mailbox Bracket Dimensions

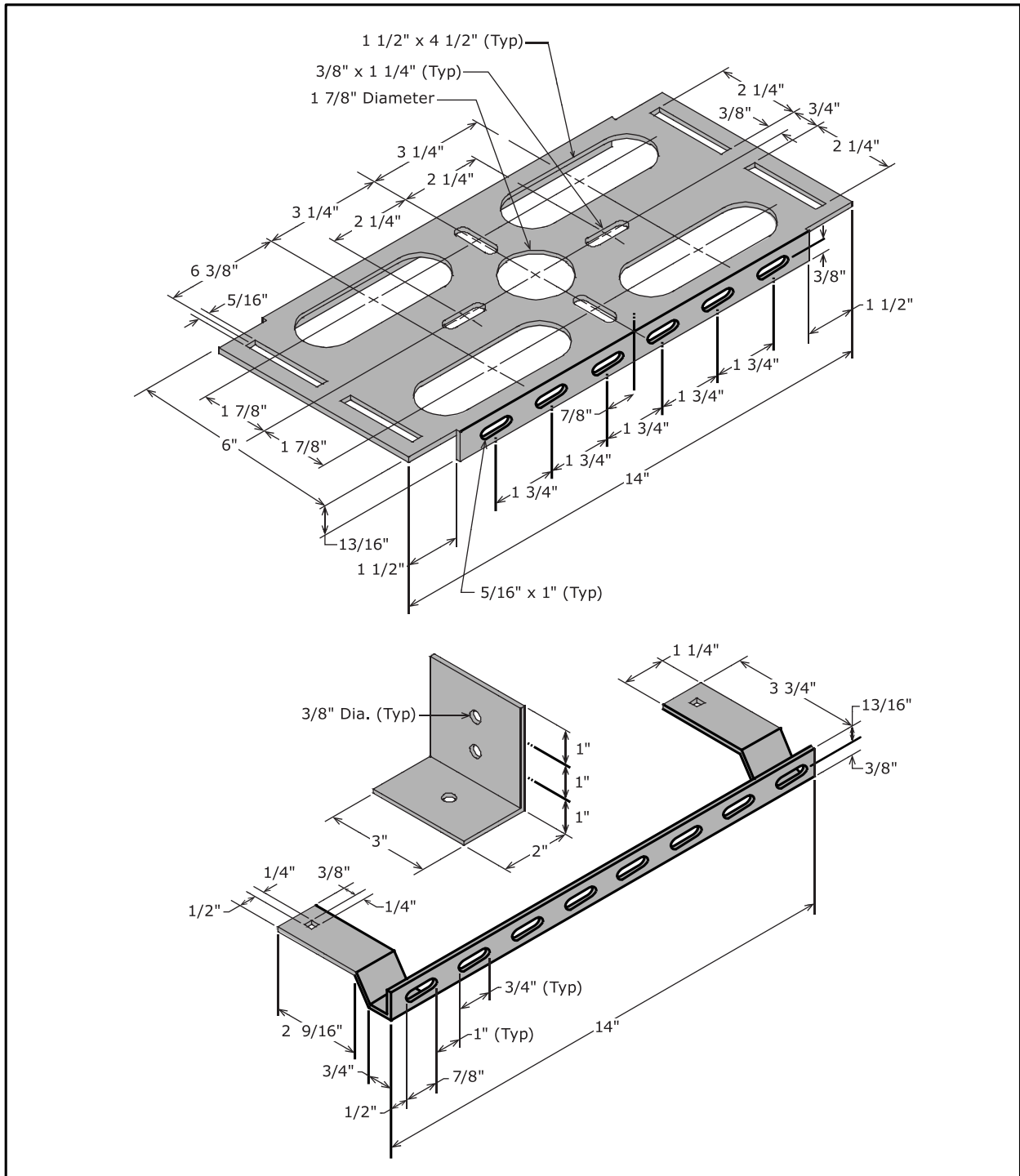


Table I-1. Temporary Mailboxes

Device	Manufacturer
Pre-assembled mailbox unit – Part #360 one base temporary mailbox	IRS® - Impact Recovery Systems, Inc.

J. TRUCK-MOUNTED PROTECTIVE DEVICES

J.1. Truck-Mounted Attenuators (TMAs) and Trailer Attenuators (TAs)

Requirements for TMAs and TAs

- TMAs and TAs used on TxDOT facilities must be NCHRP 350 or MASH compliant. Test Level 2 (TL 2) compliant TMAs are approved for use only on roadways with regulatory speed limits of 45 mph or less. Test Level 3 (TL 3) compliant TMAs may be used on any TxDOT facility.
- The host vehicle for the TMA and TA shall weigh a minimum of 19,000 pounds.*
 - Host vehicles may be ballasted to achieve the required weight.
 - Any weight added to the host vehicle shall be properly attached or contained within it so that it does not present a hazard, and that proper energy dissipation occurs if the attenuator is impacted from behind by a large truck.
 - The weight of a TA shall not be considered in the weight of the host vehicle, but the weight of a TMA may be included in the weight of the host vehicle.
- Attachment of TMA shall be in accordance with manufacturer's recommendations.

*Note: The minimum 19,000-pound weight requirement for the host vehicle applies to projects let in January 2018 and later. Projects let prior to this may use a host vehicle weight that is recommended by the TMA manufacturer. If the Contractor chooses to use a lighter vehicle to mount the TMA, then the Contractor is responsible for following the TMA manufacturer's recommendations and for being aware of the effects that a lighter vehicle will have on the roll-ahead distance and on the driver of the shadow vehicle.

Table J-1. Test Level 3 Compliant TMAs

Device	Manufacturer
<ul style="list-style-type: none"> • U-MAD Cushion 100K Impact TMA 	Lindsay Transportation Solutions, LLC
<ul style="list-style-type: none"> • RAM 100K 	Renco, Inc.
<ul style="list-style-type: none"> • Scorpion C 10000 	TraFFix Devices, Inc.
<ul style="list-style-type: none"> • Alpha 100K • MPS 350 III TMA • MPS 350 X TMA • SAFE-STOP™ • SAFE-STOP™ 180 TMA • SS180M TMA • SS90 HD TMA 	Valtir, LLC.
<ul style="list-style-type: none"> • Blade TMA 	Verdegro USA LLC

Table J-2. Test Level 3 Compliant TAs

Device	Manufacturer
<ul style="list-style-type: none"> • TTMA-100 • TTMA-200 	Gregory Industries, Inc.
<ul style="list-style-type: none"> • U-MAD 100k Trailer TA 	Lindsay Transportation Solutions, LLC
<ul style="list-style-type: none"> • Scorpion TA (17.3' long) 	TraFFix Devices, Inc.
<ul style="list-style-type: none"> • SAFE-STOP™ Trailer TA • SMT TA • Vorteq TL-3 Trailer TMA 	Valtir, LLC.

Table J-3. Test Level 2 Compliant TMAs

Device	Manufacturer
<ul style="list-style-type: none"> • U-MAD 70k TA 	Lindsay Transportation Solutions, LLC
<ul style="list-style-type: none"> • Ren-Gard 815 	Renco, Inc.
<ul style="list-style-type: none"> • Scorpion A 10000 	TraFFix Devices, Inc.
<ul style="list-style-type: none"> • Alpha 70K 	Valtir, LLC.

J.2. Truck-Mounted Barriers

Table J-4. Test Level 3 Compliant Truck-Mounted Barriers

Device	Manufacturer
• Mobile Barriers MBT-1	Mobile Barriers, LLC

K. PORTABLE TRAFFIC SIGNALS

Portable Traffic Signals (PTS) are not required to be NCHRP 350 or MASH compliant at this time. The traffic signals listed below are approved for use on TxDOT facilities based on operational requirements only.

Before installing any PTS in a work zone, each location should be:

- Engineered to ensure there is adequate line of sight between the units and any driveway or cross- street within the work zone.
- Field verified to ensure radio communication for proper operation prior to deploying the portable traffic signal.

Table K-1. Portable Traffic Signals

Device	Manufacturer
• PTS 2000 portable traffic signal	John Thomas, Inc.
• Horizon SQ3TS	Horizon Signal Technologies
• All-Star Traffic Control System - QPB RF 1000	International Traffic Systems - Texas, Inc.
• GEN2-Model PTL 2.4x for use with 0.6 miles or less distance between units	North America Traffic, Inc.
• OMJC Pop-up LD 2070 Portable Traffic Signal System	OMJC Signal, Inc.
• STS-PTS-1000A Portable Traffic Signal • STS-PTS-1000 Portable Traffic Signal	Street Smart Rental
• Ver-Mac TLA-3612 Portable Traffic Signal System	Ver-Mac Signal Technologies, Inc.

L. GLARE SCREENS

Glare screens serve to block the vehicle headlight on cross median barriers for both permanent and temporary applications. They create a visible shield across the barrier. Glare screens also provide delineation for barriers used in the work zone.

Table L-1. Glare Screens

Device	Manufacturer	Buy America Status*
Headlight Glare Screen / Modular Guidance System	Carsonite International	Compliant
Plasticade Modular Glare Screen	Plasticade	Project Level Certification Required
SAFE-HIT® Glare Screen System	Valtir, LLC.	Project Level Certification Required

*A Buy America Status of “Compliant” indicates the manufacturer has certified the model/product/material is compliant with 23 CFR 635.410 and 2 CFR Part 184 (as part of the Gold Star certification program) as classified by the Buy America Material Classification Sheet for projects federally obligated after October 1st, 2025.

M. END TREATMENTS FOR CONCRETE TRAFFIC BARRIER (CTB)

M.1. Work Zone End Treatments for CTB

Table M-1. Work Zone End Treatments for CTB

Device	Manufacturer
<ul style="list-style-type: none"> • ABSORB-M 	Lindsay Transportation Solutions, LLC
<ul style="list-style-type: none"> • Sentry Longitudinal Energy Dissipater – SLED Crash Cushion • Sentry Longitudinal Energy Dissipater Mini – SLED Mini 	TraFFix Devices, Inc.

M.2. Vehicle Impact Attenuator (VIA) Sand Filled Plastic Modules

Requirements for VIA Sand Filled Plastic Modules

- VIA Sand Filled Plastic Modules shall comply with the requirements of the current *Vehicle Impact Attenuator Sand Filled Plastic Modules (VIA(SFPM)) Standard Sheets*. These standard sheets can be found on the Design Division’s *Roadway Standards* webpage.

Table M-2. VIA Sand Filled Plastic Modules

Device	Manufacturer	Buy America Status*
CrashGard Sand Barrels	Plastic Safety Systems, Inc.	Compliant
Big Sandy Sand Barrel 48000 Series	TraFFix Devices, Inc.	Compliant

*A Buy America Status of “Compliant” indicates the manufacturer has certified the model/product/material is compliant with 23 CFR 635.410 and 2 CFR Part 184 (as part of the Gold Star certification program) as classified by the Buy America Material Classification Sheet for projects federally obligated after October 1st, 2025.

N. TRAFFIC BARRIERS

Table N-1. MASH Test Levels

Test Level	Description
TL 2	MASH Test Level 2 for roads with speeds \leq 45 mph.
TL 3	MASH Test Level 3 for roads with speeds $>$ 45 mph.
TL 4	MASH Test Level 4 for roads with speeds $>$ 45 mph.

N.1. Concrete Barriers

Refer to the Design Division’s *Roadway Standards* webpage under heading “BARRIER (RIGID)” for acceptable concrete barrier designs.

N.2. Steel Barriers

The following barriers are acceptable for use if requested by a TxDOT district and details of the barrier system are in the plans, signed and sealed by a licensed Texas Professional Engineer.

Table N-2. Steel Barriers

Device	Manufacturer
• Barrier Guard 800 (TL 3)	Highway Care
• Zoneguard (TL 3)	Hill & Smith, Inc.
• ArmorGuard Movable Steel Barrier (TL 3) • Orion Portable Steel Barrier (TL 3)	Lindsay Transportation Solutions, LLC
• Defender Barrier 70 (TL 2) • Defender Barrier 100 LDS (TL 3) • Defender Barrier 100 HC (TL 4)	Safe Barriers, LLC
• Vulcan Barrier @ Gate System (TL 3)	Valtir, LLC

N.3. Water Filled Barriers

Table N-3. Water Filled Barriers

Device	Manufacturer
• Sentry Water-Cable, Barrier (TL 3)	Traffix Devices, Inc.
• ArmorZone TL-2 Barrier and End Treatment (TL 2)	Valmont Highway (Distributed by Valtir, LLC.)
• SiteGuide® Longitudinal Channelizing Device (TL 3)	Valtir, LLC.

O. LONGITUDINAL CHANNELIZING DEVICES

Requirements for Longitudinal Channelizing Devices

- Longitudinal Channelizing Devices shall comply with the requirements of the current *Barricade and Construction Standard Sheets* (BC Sheets) and the current *Texas Manual on Uniform Traffic Control Devices* (TMUTCD).
- Longitudinal Channelizing Devices are not designed to and should not be used to provide positive protection for obstacles, pedestrians, or workers.

Table O-1. Longitudinal Channelizing Devices

Device	Manufacturer
<ul style="list-style-type: none"> • Multi-Barrier Model MB 42x45 LCB (TL 3) • Model MB42x72 JSS LCD (TL 3) 	Off the Wall Products
<ul style="list-style-type: none"> • TPAR Longitudinal Channelizer (TL 3) 	Pexco, LLC / Davidson Traffic Control Products
<ul style="list-style-type: none"> • Safety Rail (TL 3) • Safety Wall ADA-Compliant Pedestrian Barricade (TL 3) 	Plastic Safety Systems, Inc.
<ul style="list-style-type: none"> • ADA Pathcade Barrier System (TL 3) • Hydrocade (TL 3) • Strongwall LCD (TL 3) 	Plasticade
<ul style="list-style-type: none"> • 42 x 72 Longitudinal Channelizer (TL 2) 	Rochester Rotational Molding, Inc.
<ul style="list-style-type: none"> • TSS-590 Water Barrier Channelizer (TL 3) 	Traffic Safety Service, LLC.
<ul style="list-style-type: none"> • Sentry Water-Cable Barrier (TL 3) • Water Wall (TL 2) 	TraFFix Devices, Inc.
<ul style="list-style-type: none"> • Barracuda Barricade System (TL 2) • SiteGuide® Longitudinal Channelizing Device (TL 3) • Triton Barrier (TL 2) • Triton Barrier with pedestals (TL 3) • Yodock 2001 (TL 3) • Yodock 2001M (TL 3) • Yodock 2001MB (TL 2) • Yodock 2001SL (TL 2) 	Valtir, LLC.

P. PEDESTRIAN CHANNELIZING DEVICES

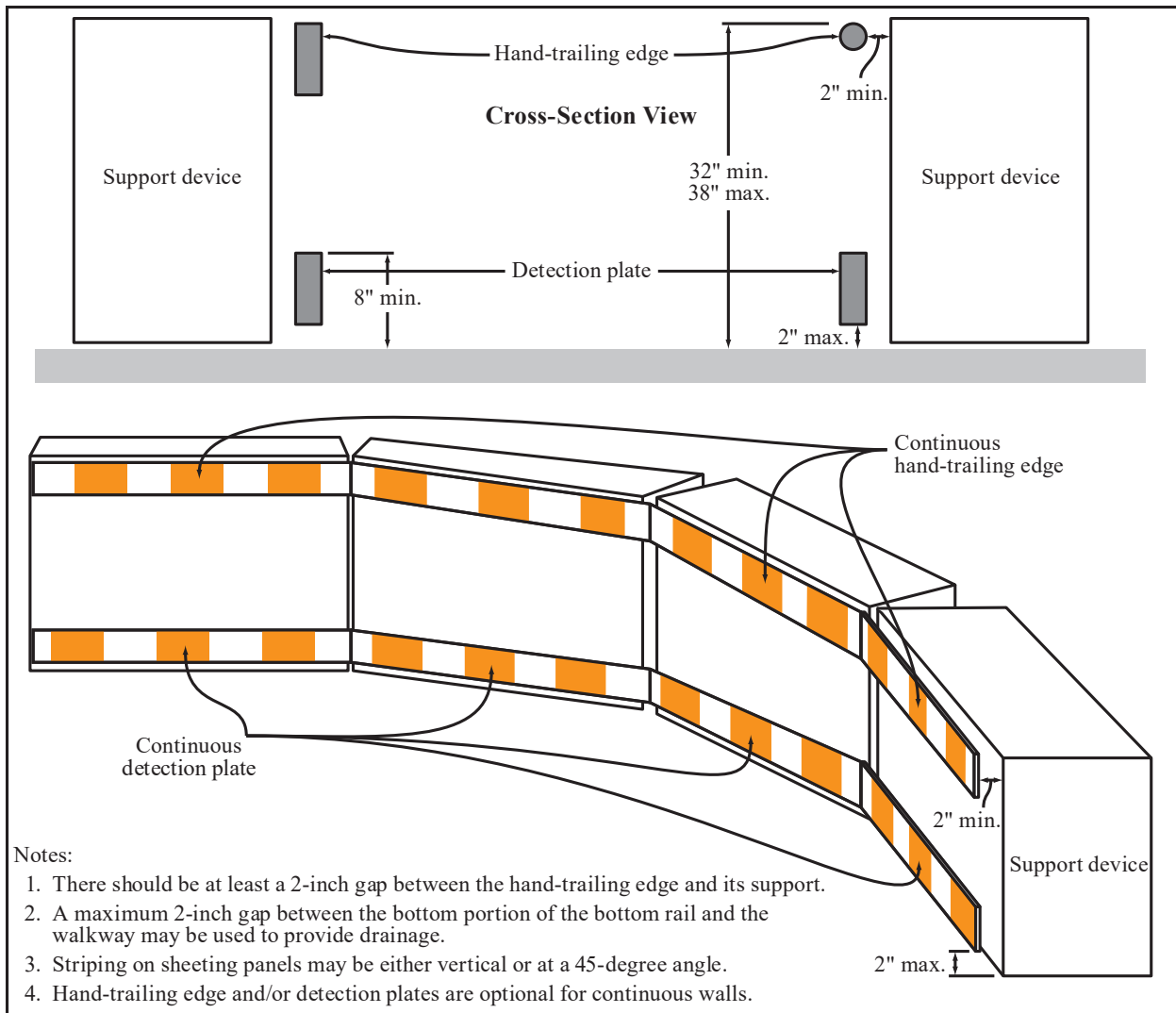
Requirements for Pedestrian Channelizing Devices

- Pedestrian Channelizing Devices shall comply with the requirements of the current *Barricade and Construction Standard Sheets* (BC Sheets) and the current *Texas Manual on Uniform Traffic Control Devices* (TMUTCD).

Table P-1. Pedestrian Channelizing Devices

Device	Manufacturer
• TPAR Longitudinal Channelizer (TL 3)	Pexco, LLC / Davidson Traffic Control Products
• Safety Rail (TL 3) • Safety Wall ADA-Compliant Pedestrian Barricade (TL 3)	Plastic Safety Systems, Inc.
• ADA Pathcade Barrier System (TL 3) • Strongwall ADA Pedestrian Barricade (TL 3)	Plasticade
• SiteGuide® Longitudinal Channelizing Device (TL 3)	Valtir, LLC.

Figure P-1. Pedestrian Channelizing Device



Q. TEMPORARY RUMBLE STRIPS

Requirements for Temporary Rumble Strips

- Temporary Rumble Strips shall comply with the requirements of the current *Temporary Rumble Strips Standard Sheet* (WZ(RS)).
- Temporary Rumble Strips are to be used on:
 - One-lane, two-way flagging operations with a posted speed of 75 mph or less; or
 - Lane closures on conventional highways with a posted speed limit of 75 mph.
- Temporary Rumble Strips should not be used when the following conditions exist:
 - Horizontal curves
 - Loose gravel
 - After seal coat has been applied
 - Soft or bleeding asphalt
 - Heavily rutted pavements
 - Unpaved Surfaces

Table Q-1. Temporary Rumble Strips

Device	Manufacturer
Roadquake 2 Folding (RQ2F) Temporary Rumble Strip	Plastic Safety Systems, Inc.

APPENDIX A. FABRICATION DETAILS

Referenced in Section H.2.b

Figure Appendix A-1. Type 2 Portable Concrete Traffic Barrier (PCTB) Sign Support Assembly (1 of 4)

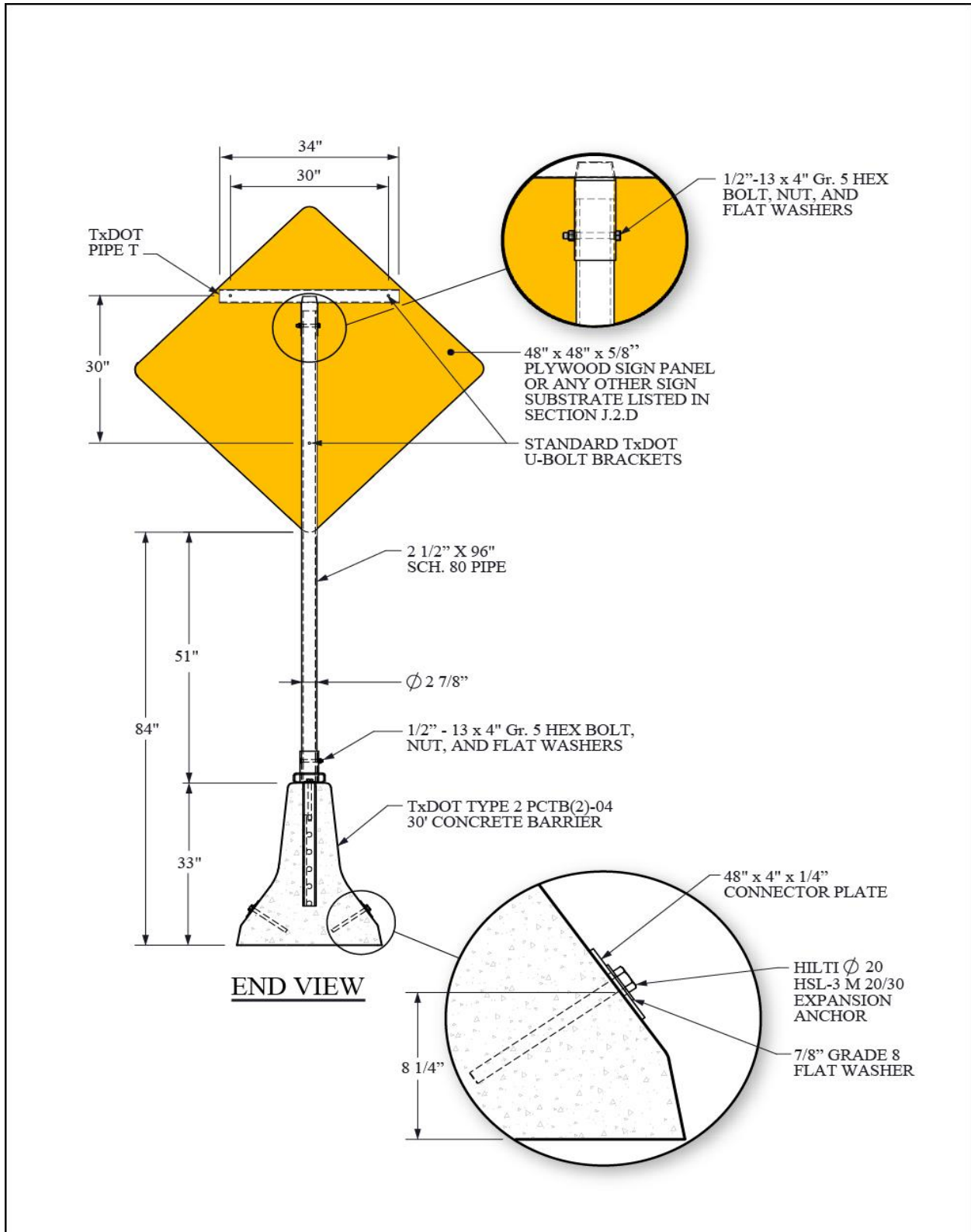


Figure Appendix A-1. Type 2 Portable Concrete Traffic Barrier (PCTB) Sign Support Assembly (2 of 4)

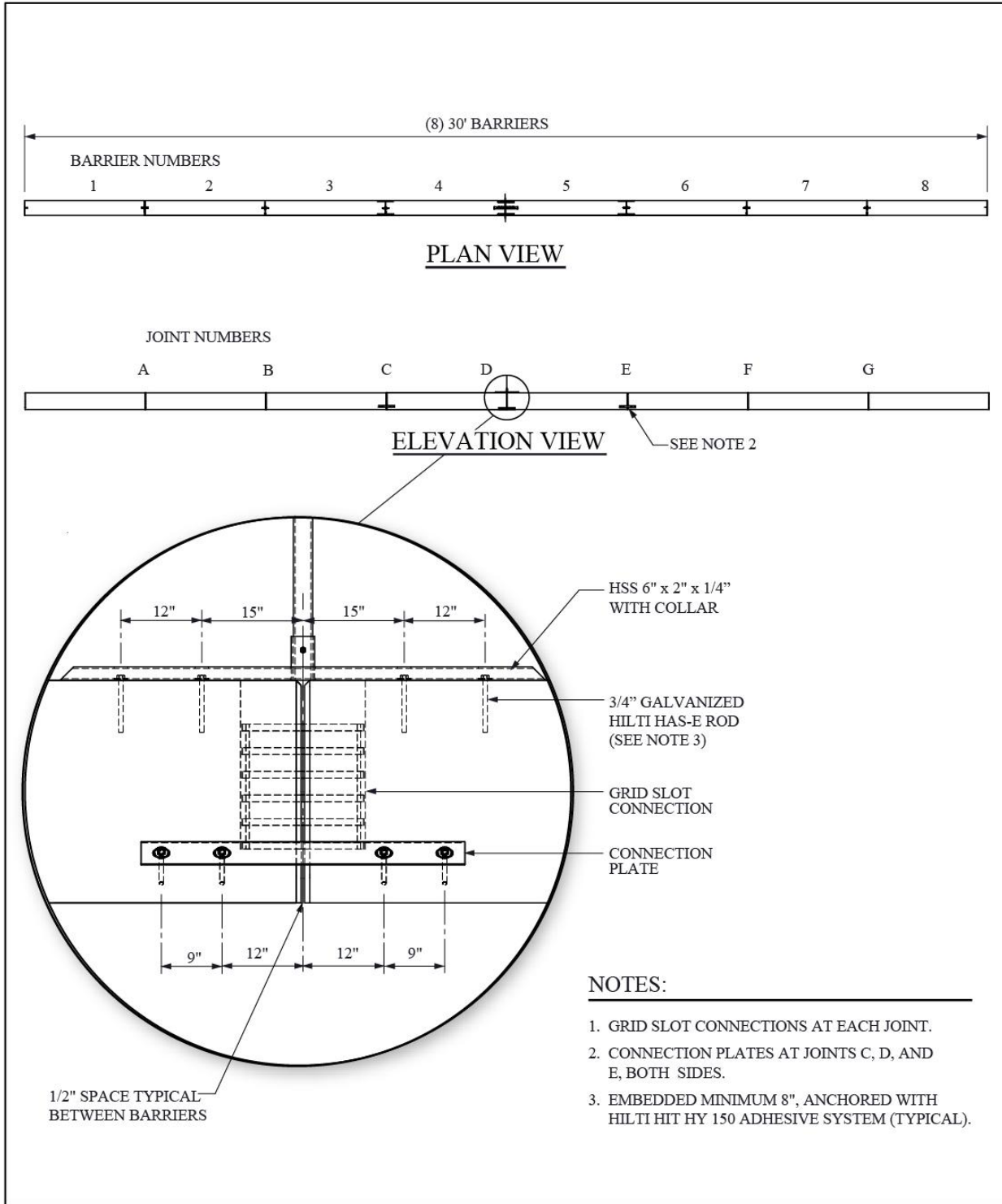


Figure Appendix A-1. Type 2 Portable Concrete Traffic Barrier (PCTB) Sign Support Assembly (3 of 4)

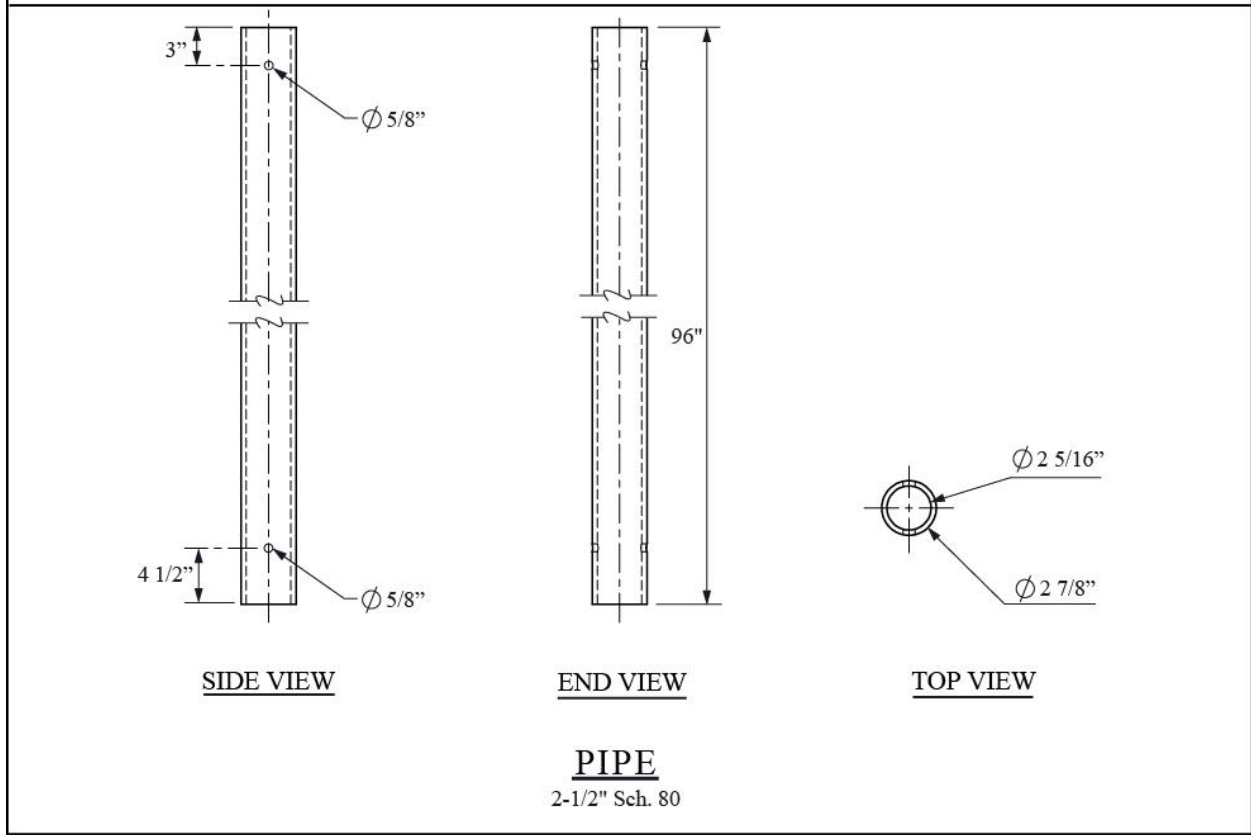
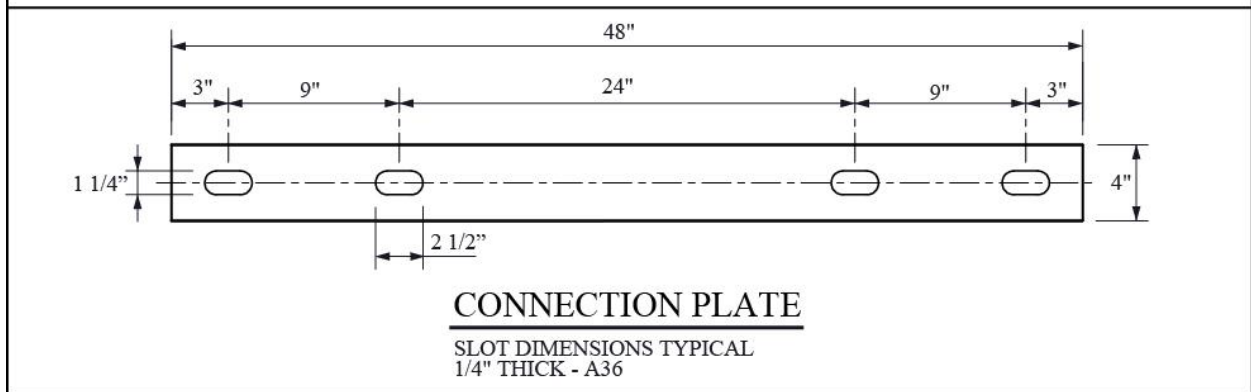
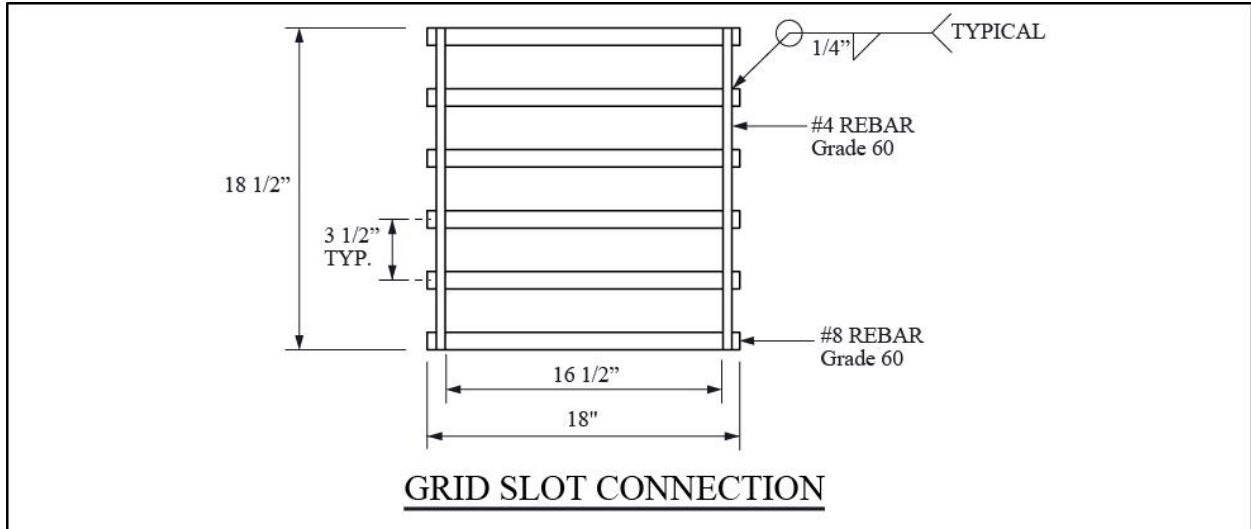
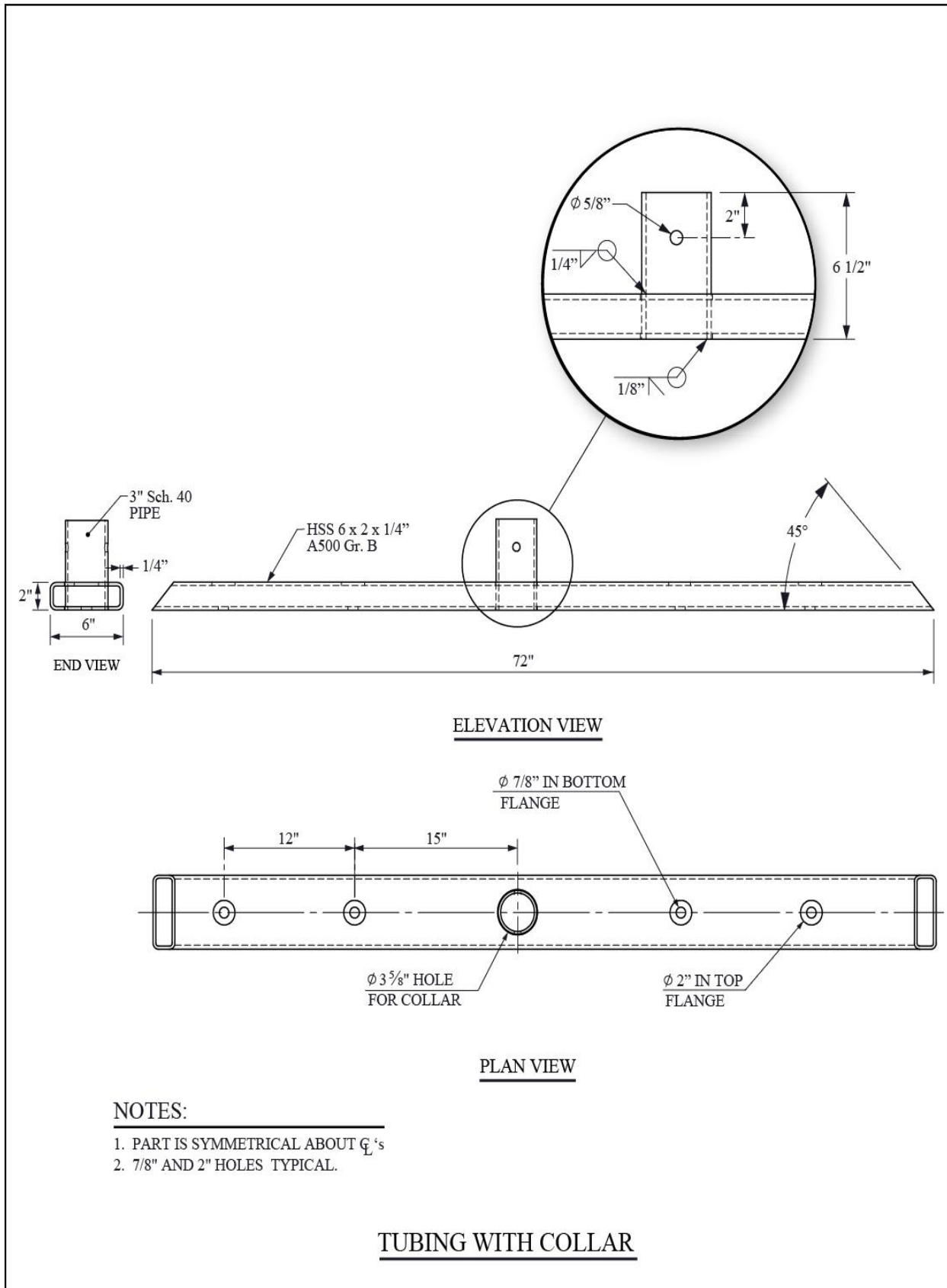


Figure Appendix A-1. Type 2 Portable Concrete Traffic Barrier (PCTB) Sign Support Assembly (4 of 4)



APPENDIX B. PRODUCT & INFORMATION SOURCES

Table Appendix B-1. Product and Information Sources

Contact Name	Contact Information
AccuForm Signs	16228 Flight Path Dr., Brooksville, FL 34604 Phone: (866) 377-3119 Web: www.accuform.com
Aeolian Enterprises	One Lloyd Avenue Place, Suite 201, Latrobe, PA 15650 Phone: (412) 539-9460
Alcan Composites USA Inc.	P.O. Box 507, Benton, KY 42025 Phone: (800) 626-33651 / (270) 527-4200 Fax: (270) 527-1552 Web: www.alucobondusa.com
Armorcast Products Co.	13230 Saticoy Street, North Hollywood, CA 91605 Phone: (818) 982-3600 Fax: (818) 982-7742 Web: www.armorcastprod.com
Atkore (F.K.A. Allied Tube & Conduit)	16100 South Lathrop Ave, Harvey, IL 60426 Phone: 1-800-882-5543 Email: telespar@atkore.com Web: https://www.atkore.com/products/traffic-products
Bent Mfg. Co. BDAA Inc.	15442 Chemical Ln, Huntington Beach, CA 92649 Phone: (888) 842-0600 / (714) 842-0600 Fax: (888) 842-BENT(2368), (714) 842-2959 Email: bmc@bentmfg.com Web: www.bentmfg.com

Contact Name	Contact Information
Bone Safety Signs	6450 Industrial Way, Alpharetta, GA 30004 Phone: (800) 873-2399, (770) 333-1635 Fax: (770) 333-1639 Web: www.bonesafety.com
Bufftech	2525 Walden Ave., Buffalo, NY 14225 Phone: (800) 333-0569, (716) 685-1600 Fax: (716) 685-1172 Web: www.bufftech.com
Carsonite International	19845 US Highway 76, Newberry, SC 29108 Phone: (800) 223-2083, (803) 943-9115 Fax: (803) 943-3375
Coroplast, Inc.	4501 Spring Valley Rd, Dallas, TX 75244-3706 Phone: (800) 806-6116, (972) 392-2241 Fax: (972) 392-2242 Web: www.coroplast.com
Cortina Safety Products	10706 Grand Avenue, Franklin Park, IL 60131 Phone: (847) 455-2800 Fax: (847) 451-7247 Web: www.cortinaco.com
Custom-Pak, Inc.	86 16th Avenue North Clinton, IA 52732 Phone: (951) 219-6106 Fax: (563) 249-3163 Web: www.traffic-pak.com
Dicke Tool Company	1201 Warren Avenue, Downers Grove, IL 60515 Phone: (630) 969-0050 Fax: (630) 969-3973 Email: scott@dicketool.com Web: www.dicketool.com

Contact Name	Contact Information
Eastern Metal Signs & Safety	1430 Sullivan Street, Elmira, NY 14901 Phone: (607) 734-2295 Fax: (607) 734-8783 Email: customerservice@usa-sign.com Web: www.easternmetalsignsandsafety.com
EcoStrate SFS, Inc.	1305 Rocky Canyon Rd., Arlington, TX 76012 Phone: (646) 715-6894 Email: hsherga@ecostrate.net Web: www.ecostrate.net
Flasher Flare South East, Inc.	P.O. Box 15395, Tampa, FL 33684-5395 Phone: (800) 367-2389, (813) 876-6463 Fax: (813) 871-2783 Email: kluzinski@ffse.tscs.com
Franklin Industries	P.O. Box 671, Franklin, PA 16323 Phone: (814) 437-3726 Phone: (606) 263-3628 Fax: (606) 263-3823
Gregory Industries, Inc.	4100 13th Street, SW, Canton, OH 44710 Phone: (330) 477-4800 Fax: (330) 477-0626 Web: http://www.gregoryhighway.com
Highway Care	7068 Fire Opal Dr., Las Vegas, NV 89131 Phone: (702) 204-0732 Web: www.highwaycareusa.com
Hill & Smith, Inc.	1000 Buckeye Park Rd., Columbus, OH 43207 Phone: (614) 340-6294 Fax: (614) 340-6296 Web: www.hillandsmith.com
Horizon Signal Technologies	5 Corporate Blvd., Reading, PA 19608 Phone: (800) 852 8796 Email: kthrasher@horizonsignal.com Web: www.horizonsignal.com

Contact Name	Contact Information
Inteplast Group Ltd.	9 Peach Tree Hill Road, Livingston, NJ 07039 Phone: (800) 452-2117 Fax: (800) 889-8807 Plant: 101 Inteplast Blvd., Lolita, TX 77971 Phone: (512) 874-3754 Fax: (512) 874-3984 Web: www.inteplast.com
International Plastics Corporation	111 Patton Court, Nicholasville, KY 40356 Phone: (606) 887-2877
International Traffic Systems - Texas, Inc.	P.O. Box 761, Hondo, TX 78661 Phone: (830) 741-2205 Fax: (830) 426-5244
IRS® - Impact Recovery Systems, Inc.	4955 Stout Drive, San Antonio, TX 78219 Phone: (210) 736-4477 Fax: (210) 736-2084
Itasca Plastics	3750 Ohio Avenue, St. Charles, IL 60174-5438 Phone: (800) 961-9101, (630) 443-4446 Fax: (630) 443-8930
John Thomas, Inc.	1560 Lovett Drive, Dixon, IL 61021 Phone: (815) 288-2343 Web: www.jtitraffic.com
Korman Signs, Inc.	3029 Lincoln Ave., Henrico, VA 23228 Phone: (800) 296-6050 / (804) 262-6050 Email: korman@kormansigns.com Web: www.kormansigns.com
Lakeside Plastics, Inc.	P.O. Box 2384, Oshkosh, WI 54903 Phone: (920) 235-4513 Fax: (920) 235-6545

Contact Name	Contact Information
Lancaster Composite	P.O. Box 247, Columbia, PA 17512-0247 Phone: (717) 684-4440 Fax: (717) 684-4445
Lang Products International, Inc.	1440 7th Ave., Newport, MN 55055 Phone: (281) 357-1511 Fax: (281) 357-1505
Lindsay Transportation Solutions, LLC	18135 Burke Street, Suite 100, Elkhorn, NE 68022 Phone: (800) 829-5300 Web: https://www.lindsay.com/usca/en/infrastructure/brands/barrier-systems/
Maxistrut, Inc.	P.O. Box 70067, Houston, TX 77270-0067 Phone: (713) 880-4228 Fax: (713) 868-4550
MDI - Marketing Displays International	38271 W. Twelve Mile Road, Farmington Hills, MI 48331-3041 Phone: (800) 521-6776, (248) 553-1900 Fax: (248) 488-5700 Email: tcpsales@mdiworldwide.com Web: www.mdiworldwide.com
Melba Products, Inc.	584 Francestown Road, Bennington, NH 03442 Phone: (603) 588-4034 Fax: (603) 588-8027
Metro Plastic Barricades	4417 Winding Creek Ct., Arlington, TX 76016 Phone: (817) 563-0008
Mobile Barriers, LLC	24918 Genesse Trail Rd., Golden, CO 80401 Phone: (303) 526-5995 Email: info@mobilebarriers.com

Contact Name	Contact Information
MSi - Material Sales International	3102 S. Roosevelt Street, Tempe, AZ 85282-2008 Phone: (800) 426-7155, (602) 894-0365 Fax: (602) 967-6704
North America Traffic, Inc.	7 Petersburg Circle, Port Colborne, Ontario, Canada L3K 5V4 Phone: (877) 352-4626 Web: www.northamericatraffic.com
Nucor Steel Marion, Inc.	912 Cheney Ave., Marion, OH 43301-18011 Phone: (800) 333-4011, (614) 383-4011 Fax: (614) 383-6429
Off the Wall Products	P.O. Box 1461, Salt Lake City, UT 84110 Phone: (801) 363-7740 / (888) 363-7740 Fax: (801) 363-6372 Web: www.multi-barrier.com
OMJC Signal, Inc.	P.O. Box 1594, Waterloo, IA 50704-1594 Phone: (800) 776-5999 / (319) 236-0200 Fax: (319) 236-1554 Email: sales@omjcsignal.com Web: www.omjcsignal.com
PBS, Inc.	c/o Price Traffic Products 3810 Harvey Rd., College Station, TX 77845 Phone: (800) 392-1979, (979) 774-9191 Fax: (979) 774-9193 Email: sales@pricetrafficproducts.com
Pexco, LLC / Davidson Traffic Control Products	3110 70th Avenue East, Tacoma, WA 98424-3608 Phone: (877) 355-4638 Fax: (253) 284-8080 Email: hwysales@pexco.com Web: www.pexco.com

Contact Name	Contact Information
Plastic Safety Systems, Inc.	2444 Baldwin Rd., Cleveland, OH 44104 Phone: (800) 662-6338, (216) 231-8590 Fax: (216) 231-2702 Email: team@pss-innovations.com Web: https://www.pss-innovations.com
Plasticade	7700 Austin Ave., Skokie, IL 60077 Phone: (800) 772-0355, (847) 470-0400 Fax: (847) 470-0420
Radiator Specialty Company	P. O. Box 34689, Charlotte, NC 28234-6080 Richard Brown, National Sales and Marketing 1900 Wilkinson Boulevard, Charlotte, NC 28208 Phone: (800) 438-4532, (704) 377-6555 Fax: (800) 421-9525
Rad-Tec Fabricators, Inc.	4810 Rincon Rd., Corpus Christi, TX 78402 Phone: (361) 883-0831 Fax: (361) 883-0867 Web: www.radtecrubberall.com
Recycled Plastic Products, Inc.	1630 W. Evans Unit L, Englewood, CO 80110 Phone: (800) 235-7940, (303) 975-0033 Fax: (303) 975-0050 Email: www.plastifnce@aol.com
Reflexite Corporation	120 Darling Drive, Avon, CT 06001-4217 Phone: (860) 676-7100 Fax: (860) 676-7199 Web: www.reflexite.com
Renco, Inc.	P.O. Box 730, Pflugerville, TX 78691-0730 Phone: (800) 654-8182, (512) 251-2421 Fax: (512) 251-5411
Reynolds Metal Company	P.O. Box 429, Eastman, GA 31023 Phone: (800) 841-7774

Contact Name	Contact Information
Rochester Rotational Molding, Inc.	P.O. Box 205, Rochester, IN 46975 Phone: (574) 223-0557 Fax: (574) 223-8303 Web: www.rrmplastics.com
Safe Barriers, LLC	8 The Green, Suite A, Dover, DE 19901 Phone: (888) 215-4535, (202) 886-8954 Email: info@safebarriers.com Web: www.safebarriers.com
Safety Barriers, Inc.	10519 Lexington Dr, Knoxville, TN 37933 Phone: (865) 966-1923, (800) 966-2012 Fax: (865) 675-3622 Web: www.safetybarriersinc.com
Sequentia Incorporated	P.O. Box 360530, Cleveland, OH 44136 Phone: (216) 238-2400 Fax: (216) 238-0820
Service Signing, L.C.	P.O. Box 158, Cedar Falls, IA 50613 Phone: (319) 235-9356 Fax: (319) 235-0960
S-Square Tube Products	P.O. Box 306, Commerce City, CO 80037 Phone: (303) 286-7051, (888) 267-6463 Fax: (866) 639-5717 Web: www.s-squaretube.com
Street Smart Rental	8404 El Way, Missoula, MT 59808 Web: https://www.streetsmartrental.com/
TAPCO - Traffic & Parking Control Co.	5100 West Brown Deer Road, Milwaukee, WI 53223 Phone: (800) 236-0112, (414) 258-1115 Fax: (414) 258-2087 Email: tapco@tapconet.com Web: www.tapconet.com

Contact Name	Contact Information
Texas Corrugators (formerly HWYCOM)	105 Tradesmens Park Dr., Hutto, TX 78634 Phone: (512) 388-0588 Email: Info@TxCorr.com Web: http://www.TxCorr.com
Three D Traffic Works, Inc.	430 North Varney Street, Burbank, CA 91502 Phone: (877) THE-WRKS, (818) 841-2182 Fax: (818) 841-5096 Web: www.3dplastics.com/tw
Traffic Control Products Group	2320 N. Central Exwy., Dallas, TX 75204 Phone: (214) 887-0979 Fax: (214) 887-0902
Traffic Control Systems	P.O. Box 1111, Beeville, TX 78104 Phone: (361) 362-2221 Fax: (361) 362-2223
Traffic Safety Service, LLC.	601 Hadley Road South Plainfield, NJ 07080
Traffix Devices, Inc.	220 Calle Pintoresco, San Clemente, CA 92672 Phone: (949) 361-5663 Fax: (949) 361-9205 Web: www.traffixdevices.com
Transportation Research Board	National Research Council 2101 Constitution Avenue, N. W., Washington, D.C. 20418 Web: www.nas.edu/trb
Trus Joist MacMillan	2600 East Amity Road, Boise, ID 83716 Phone: (800) 441-4852, (208) 365-3600

Contact Name	Contact Information
TxDOT-Texas Department of Transportation	Attn: Standards Engineer, TRF – TE 125 E. 11th Street, Austin, TX 78701-2483 Phone: (512) 416-3120 Web: www.txdot.gov/about/divisions/traffic-safety-division.html
Ultimate Highway Solutions	4121 Rushton St, Florence, AL 35630 Phone: (616) 836-7716
Universal Anchor Systems, LLC	P.O.Box 3010, Big Spring, TX 79721-3010 Phone: (800) 449-9109
US Highway Products, Inc.	American Fiber Technologies Division 407 Brookside Road, Waterbury, CT 06708 Phone: (800) 883-8363 Fax: (203) 755-9158
Utility Structural Systems	11515 Counselor, Houston, TX 77065 Phone: (800) 367-9273, (713) 991-1145 Fax: (281) 890-6913
Valmont Highway	57-65 Airds Road, Minto, NSW, 2566, Australia Phone: +61 2 98273353 Fax: +61 2 98273300 Web: www.valmonthighway.com
Valtir, LLC.	15601 Dallas Parkway, Suite 525, Addison, TX 75001 Web: www.valtir.com
Verdegro USA LLC	1700 W. Irving Park Rd, Suite 209A, Chicago, IL 60613 Phone: (786) 408-5709 Fax: (786) 431-3097 Email: www.sales@verdegro.com

Contact Name	Contact Information
Ver-Mac Signal Technologies, Inc.	1781 Rue Bresse, Quebec, QC G2G 2V2 Canada Phone: (888) 488-7446, (418) 654-1303 Fax: (418) 654-0517 Web: www.ver-mac.com
Western Highway Products, Inc.	10650 Fern Ave., Stanton, CA 90680 Phone: (714) 761-4811 Fax: (714) 952-2118 Web: www.westernhighway.com Email: whpsales@westernhighway.com
Work Area Protection Corporation	2500 Production Dr. - P.O. Box 4087, St. Charles, IL 60174-9081 Phone: (800) 327-4417, (630) 377-9100 Fax: (630) 377-9270 Email: workarea@workareaprotection.com
Work Zone Safety Products, Inc.	7201 Haven Ave., Suite E, Rancho Cucamonga, CA 91701 Phone: (909) 266-1453 Web: www.workzonesafetyproducts.com