



Specifications for SWC 126 Highway Markings and Accessories

The purpose of this ITB is to competitively procure highway signs and additional road safety goods for the State and Authorized Users. The scope of the contract includes but is not limited to: pavement markers, posts, aluminum signs (finished or blank), sign supports, delineators, traffic cones, and barricades (plastic and drum).

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Section One: General Solicitation Information

1.1. Definition of Terms and Acronyms

Term/Acronym	Definition
AASHTO	American Association of State Highway and Transportation Officials
ASTM	American Society for Testing and Materials
Authorized Users	Entity authorized to purchase off the SWC including: a. all Tennessee State governmental entities (this includes the legislative branch; judicial branch; and, commissions and boards of the State outside of the executive branch of government); b. Tennessee local governmental agencies; c. members of the University of Tennessee or Tennessee Board of Regents systems; d. any private nonprofit institution of higher education chartered in Tennessee; and, e. any corporation which is exempted from taxation under 26 U.S.C. Section 501(c) (3), as amended, and which contracts with the Department of Mental Health and Substance Abuse to provide services to the public (Tenn. Code Ann. § 33-2-1001).
CIE	International Commission on Illumination
FHWA	Federal Highway Administration
MUTCD	Manual on Uniform Traffic Control Devices sets minimum standards for all Traffic Control Devices used on U.S. roads and highways.
NCHRP	National Cooperative Highway Research Program
QPL	Tennessee Department of Transportation Qualified Products List
TCPMC	TDOT Traffic Control Products and Materials Committee
TDOT	Tennessee Department of Transportation
Type A	Retroreflective sheeting materials meeting Type A are typically constructed of encapsulated microscopic glass bead lens construction. Typical applications for this material are permanent highway signing, construction zone devices, and delineators.
Type B	Retroreflective sheeting materials meeting Type B are typically constructed of unmetallized microprismatic optics. These triangular microprismatic materials do

	not have a significant 1-degree observation angle performance. Typical applications for this material are permanent highway signing, construction zone devices, and delineators.
Type C	Retroreflective sheeting materials meeting Type C are typically constructed of unmetallized microprismatic optics. These triangular microprismatic materials have a significant 1-degree observation angle
Type D	Retroreflective sheeting materials meeting Type D are typically constructed of unmetallized microprismatic optics. These materials have 0.5- and 1-degree observation angle performance approximately two times greater than Type C materials. This sheeting is typically used for orange temporary roll-up warning signs, traffic cone collars, and post bands.

1.2. Unit of Measure (UOM) Abbreviations

- 1.) RL = Roll
- 2.) SF = Square Foot
- 3.) EA = Each
- 4.) PK = Pack
- 5.) HU = Hundred
- 6.) FT = Foot
- 7.) CT = Count

Section Two: General Requirements – these requirements are to be followed by all awarded Contractors for SWC 126 Highway Markings and Accessories.

2.1. Contract Manager

The Contractor shall designate a contract manager for the contract. The contract manager will be a single point of contact for the state contract administrator and be responsible for addressing broad contract issues and requests brought to them by the state contract administrator. The contract manager should have the authority and competence to address and correct any issues related to the contract. The Contractor shall notify the state contract administrator in writing within three (3) business days of assigning a new contract manager. Contact information shall be provided for each Contractor location awarded under SWC 126. Authorized Users must be able to reach

out to each location with questions including, but not limited to the following: billing, invoices, and products.

2.2. Certification Requirements

The Contractor must provide a certification letter upon delivery of products from the manufacturer stating that the material supplied meets all the following requirements:

The Contractor must certify that products and materials provided through the contract are of the same formulation as the materials approved and placed on the Tennessee Department of Transportation Qualified Products List (QPL). Any change in formulation will require that a sample be submitted for re-evaluation to be considered for inclusion on the QPL.

2.3. TDOT Qualified Products List (QPL)

The Tennessee Department of Transportation (TDOT) utilizes a Traffic Control Products and Materials Committee (TCPMC). This committee is comprised of representatives from Materials and Testing, Bureau of Engineering and Traffic Operation and evaluates and approves product(s) for State use. Respondents should note that the TCPMC is responsible for reviewing product presentations, conducting discussions of procedure or other items which might arise, and making recommendations to the TDOT. Products that perform satisfactorily and meet all testing or certification requirements will be added to the QPL.

For more information regarding the QPL please visit TDOT's website at:

<https://www.tn.gov/tdot/materials-and-tests/research---product-evaluation-and-qualified-products-list.html>

TDOT contact:

Division of Material and Tests
6601 Centennial Boulevard
Nashville, TN 37243-0360
Contacts: Danny Lane or Richard Weber
Phone: 615-350-4100

For a list of all QPL line items refer to Attachment A. QPL line items will be identified on Attachment B - Evaluation Model in red.

Section Three: Category Requirements

3.1. Category 1 – Sign Blanks and Sheets

Applies to Item ID #: 1000134467, 1000134412, 1000135136, 1000071680, 1000135135, 1000071397, 1000134397, 1000071313, 1000071311, 1000134386, 1000071398, 1000134409, 1000134498, 1000135138, 1000071312, 1000071399, 1000071309, 1000071310, 1000021878, 1000021880, 1000021883, 1000021886, 1000021887, 1000021888, 1000021898, 1000072089, 1000072291, 1000072387, 1000072388, 1000072491, 1000135450, 1000135451, 1000135460, 1000135463, 1000135468, 1000135469, 1000135470, 1000135471, 1000135472, 1000135473, 1000021873, 1000072490, 1000072302, and Bid Item 33

Applies to QPL Item ID #: 1000134428, 1000134422, 1000134421, 1000134417, 1000135133, 1000135131, 1000134424, 1000134425, 1000134426, 1000134427, 1000136244, 1000135132, 1000134410, 1000134411, 1000134413, 1000134420, 1000134419, 1000134423, 1000134404, 1000134401, 1000134407, 1000134391, 1000135137, 1000134402, 1000134406, 1000134408, 1000129511, and 1000134403

- a) Sign Faces Fabricated from Type B, Type C, or Type D Reflective Sheeting (Per AASHTO M 268)

The adhesive shall be heat activated or pressure sensitive as specified by the Authorized User and will include all shapes; rectangular, squares, circles, triangles, equilateral triangles, octagons, and standard reflective traffic sign faces. Color coating, clear coating and all screening procedures shall be as recommended by the manufacturer of the reflective sheeting. The Authorized User shall specify the number of colors, sizes, etc.

- b) Black Film (compatible with Type B, Type C, or Type D Reflective Sheeting) (Per AASHTO M 268)

Black film in rolls, cutout letters, borders and corner radius. A certification shall be submitted with each shipment stating that the black film, either pressure sensitive or heat activated is compatible with Type B, Type C, or Type D Reflective sheeting.

c) Finished Signs (Faces & Blanks)

Flat sheet aluminum sign blanks shall be alloy 6061/T6 or 5052/H38 and be used with reflective sheeting to fabricate the finished signs. The sign message or symbol shall be screened onto the reflective sheeting.

The sign blanks shall be flat within the tolerance as published by The Aluminum Association aluminum standards and data, either 0.080 inch or 0.100 inch thick. The sign blanks shall be thoroughly degreased, rinsed and treated with a light, tight, amorphous chromate type coating prior to applying any sheeting. All holes and corners radii shall be fabricated as shown in the MUTCD and any subsequent revisions.

The reflective sheeting shall be Type B, Type C, or Type D Reflective Sheeting (Per AASHTO M 268) for all signs with a silver, white, yellow, red, green, and blue background. Orange and yellow background material shall be Type III or greater meeting the requirements listed in specification titled "fluorescent orange reflective sheeting" and "fluorescent yellow reflective sheeting". Color coating and all screening procedures shall be as recommended by the manufacturer of the reflective sheeting.

d) Film, Electronic and Cuttable

Transparent colored film shall be coated with a transparent, pressure sensitive adhesive that is protected by a removable liner. The film shall be designed for use on electronic cutting machines. A certification shall be submitted with each shipment stating that the film is compatible with Type B, Type C, or Type D reflective sheeting (Per AASHTO M 268).

e) Aluminum Sign Blanks, Tennessee Highway Maintenance

Aluminum sign blanks (rectangle, octagon, triangle, circle, pentagon, flat sheet and interstate) shall be alloy 6061/T6 or 5052/H38. The aluminum blanks are to be used with high intensity reflective sheeting. The sign message will be screened after the high intensity sheeting has been applied. The sign blanks shall be flat within the tolerance as published by The Aluminum Association aluminum standards and data. Each shipment will be inspected and if they are not within the allowable tolerances, the blanks will be returned to the supplier. The aluminum blanks shall be thoroughly degreased, rinsed and treated with a light, tight amorphous chromate type coating. All holes and corner radii shall be fabricated as shown in the MUTCD.

f) Extruded Aluminum Sign Panels

The extruded aluminum sign panels shall be alloy 6063-T6. The aluminum sign blanks are to be used with high intensity reflective sheeting. The sign message will be screened after the high intensity sheeting has been applied.

g) Sign Stand and Sign, Flexible Roll-Up Type

1. Description:

The material covered by this specification is intended for use as a wind resistant stand for rigid or flexible roll up type warning signs up to 48 inches in size.

2. Requirements:

All sign stands shall be independently tested and found to be in compliance with the crash worthiness guidelines established by the National Cooperative Highway Research Project - report 350 (NCHRP-350) or Manual for Accessing Safety Hardware (MASH). Manufacturer to provide letter from an accredited test facility stating the stand with sign attached meets the standard of NCHRP-350 or MASH and has an FWHA acceptance letter (or sufficient documentation to establish FWHA acceptance). Product shall display sticker stating that it is in compliance with NCHRP-350 or MASH.

3. Type A:

Type "A" stands shall be designed for rigid signs up to 48 inches by 48 inches. The stands shall be composed of four positive locking legs having two different settings to accommodate uneven terrain and equipped with rubber anti-skid feet riveted to frame. Parts shall be manufactured from galvanized steel or 6000 series tubular aluminum (0.100 inch wall thickness minimum). Maximum weight with sign brackets shall not exceed 40 pounds.

Two heavy duty coil springs shall be attached to the base assembly to provide for wind deflection and rebounding of signs.

4. Sign stands with 48 inch sign shall be capable of withstanding wind gusts up to 50 mph and return to the upright position with no twisting or turning. Sign stands shall withstand a 180 degree flexure and return to the vertical position with no significant loss in tension rate. Sign stands shall be designed so that all component parts may be readily replaced if necessary. Sign stands shall not require additional hardware to attach signs by a positive locking mechanism to stands. Sign stands shall be designed so that they can be folded for storage.

5. Type B:

Type "B" sign stands shall be designed for flexible signs up to 48 inches by 48 inches. The stands shall be composed of four 2-piece telescoping, positive locking legs having two different settings to accommodate uneven terrain and equipped with rubber anti-skid feet riveted to frame.

Parts shall be manufactured from galvanized steel or 6000 series tubular aluminum (0.100 inch wall thickness minimum). Maximum weight with sign brackets shall not exceed 40 pounds.

A spring mechanism shall be attached to the base assembly to provide for wind deflection and rebounding of signs.

6. Sign stands with 48 inch sign shall be capable of withstanding wind gusts up to 50 mph and return to the upright position without requiring additional ballast or tie downs. Sign stands shall be designed so that all component parts may be readily replaced if necessary. Sign stands shall be such that it will accept the roll up signs of any major manufacturer without additional hardware to attach signs by a positive locking mechanism to stand. Sign stands shall be designed so they can be folded for storage.

7. Quality assurance:

The contract holder shall submit a certificate of conformance from an independent laboratory to the Solicitation Coordinator along with your Evaluation Model during this procurement. Any time a change is made by the Supplier to the brand or model being supplied, a new certificate of conformance shall be sent to the Department of Transportation, Materials and Test Division, Central Laboratory, to determine compliance with these specifications and be approved for use.

h) Sign, flexible roll up type. M/112.20

1. Description:

This specification covers flexible roll up sign blanks or finished signs made from fabric backed vinyl micro prism sheeting.

2. Requirements:

All signs shall be independently tested and found to be in compliance with the crash worthiness guidelines established by the national cooperative highway

research project - report 350 (NCHRP-350) or MASH. Manufacturer to provide letter from an accredited test facility stating the sign attached to a stand meets the standard of NCHRP-350 or MASH and has FHWA acceptance letter (or sufficient documentation to establish FHWA acceptance).

3. Sign blanks:

Signs shall be made of material meeting the requirements of ASTM D4956 type VI, and shall be "fluorescent orange" or "fluorescent coral" in color and shall exceed retroreflective values for orange or coral in table 7 Type D Reflective Sheeting per AASHTO M 268 by at least 50%.

i) Cross brace materials:

1. Cross braces will be constructed of fiberglass. The cross brace material will be 75% glass and 25% resin by weight. It must have a resin rich surface protected by a UV stabilizer. The surface must be glossy mold finish to avoid bloom.
2. The horizontal and vertical cross brace for 36 x 36 inch signs shall be made of 1 ¼ inch x 1/4 inch material (minimum). The vertical piece for 48 x 48 inch signs shall be made of 1 ¼ inch x 3/8 inch (minimum) material and the horizontal brace piece shall be made of 1 ¼ inch x 3/16 inch material (minimum). Lengths shall be as required to fully display the sign.
3. Cross braces shall be fastened at their centers using a 3/16 inch (minimum) carriage bolt and a self-locking nut or steel semi-hollow rivet. The braces must be separated by a 1/16 inch, thick flat washer. Cross brace ends must be rounded to prevent splintering, sharp edges and damage to sign face.
4. Fasteners shall be provided at the horizontal corners to provide a means to fully display the sign. Each fastener shall be constructed of a single clear polycarbonate plate or equal on the front side of the sign corner mechanically riveted with at least two (2) rivets to a single piece polycarbonate pocket or equal on the rear side of the sign corner. The minimum internal dimensions of the rear side pocket shall be 5/16 inch x 1 5/16 inch x 2 1/12 inch.

Some means shall be provided to secure the sign to the cross brace near the intersection in order to prevent kiting.

5. Legends:

When specified sign blanks shall be converted to finish signs. Legends shall be those specified by the Authorized User. Legends are to be silk-screened with

permanent ink and shall meet U.S. Department of Transportation standards for legibility from a distance of 350 feet.

Finished signs may be required by the Authorized User to be provided with the provision to change the legend with regards to direction and/or meaning of message by means of overlay panels.

6. Overlay panels:

Overlay panels shall be constructed of the same material and in the same manner as the sign blank. Some noncorrosive means of attaching overlay panels shall be provided for display and storage.

7. Storage:

Each sign shall have a Velcro or equivalent strap riveted near one side corner of the back of the sign, of sufficient length to secure the sign when it is rolled up. The sign message shall be printed between the border and the edge of the sign near the right and left corners so it is readable when the sign is rolled up.

j) Vehicle Visibility Markings (Retro-Reflective Sheeting)

Retro-Reflective Sheeting shall meet the requirements of Type B, Type C, or Type D Reflective Sheeting (per AASHTO M 268). Standard specification for Retro-Reflective Sheeting for traffic control, should meet the photometric requirements of the following table:

Entrance Angle	Observation Angle				Grade
	0.2 Degrees		0.5 Degrees		
Degrees	White	Red	White	Red	
-4	250	60	65	15	All
30	250	60	65	15	All

Retro-Reflective Sheeting shall have a pattern of alternating white and red color segments. Retro-Reflective Sheeting shall have a pressure sensitive backing with liner. Retro-Reflective Sheeting shall have a width of 2 inches (grade dot-C2), 3 inches (grade dot-C3), or 4 inches (grade dot-C4).

k) Truck Conspicuity

Must comply with Attachment D: TDOT Truck Conspicuity Specifications.

3.2. Category 2 - Posts

Applies to Item ID #: 1000071740, 1000072588, 1000079089, 1000165581, 1000165582, 1000165583, 1000165584, 1000135489, 1000135490, 1000135409, 1000072680, 1000072681, 1000072679, 1000020417, 1000020418, 1000135388, 1000135411, 1000135412, 1000135413, 1000135414, 1000135416, 1000020364, 1000020365, 1000020366, 1000020368, 1000020370, 1000020372, 1000020377, 1000020378, 1000020380, 1000020381, 1000071297, 1000071300, 1000071305, 1000135474, 1000135475, 1000135477, 1000135478, 1000135479, 1000135480, 1000135486, 1000135487, 1000135488, 1000135134, 1000135492, 1000135493, 1000135494, 1000135495, 1000135497, 1000135498, 1000135499, 1000135525, 1000135396, 1000165591, 1000165592, 1000135389, 1000165593, 1000165594, 1000165595, 1000135390, 1000071298, 1000072785, 1000072786, 1000072787, 1000072790, 1000133598, 1000133599, 1000133601, 1000133603, 1000133605, 1000133607, 1000135383, 1000135491, 1000135410, 1000072592, 1000135407, 1000135408 and 1000135483

Applies to QPL Item ID #: 1000135441, 1000135440, 1000135442, 1000135443, 1000135452, 1000135453, 1000135454, 1000135455, 1000135456, 1000135457, 1000135458, 1000135459, and 1000135520

a) Steel Sign

1. Requirements:

Steel sign post and delineator post: u/post design and perforated square tube design. Must comply with drawings T-S-17 and T-S-19 available at: <https://www.tn.gov/content/tn/tdot/roadway-design/traffic-operations-division-resources/standard-traffic-operations-drawings.html>.

2. Quality:

Steel u-post shall be manufactured from steel conforming to the mechanical requirements of ASTM A 499 and galvanized conforming to the requirements of ASTM A 123. All posts shall be punched or drilled with 3/8 inch diameter

holes on 1 inch centers for the entire length of post. Galvanizing shall be the final process after all fabrication and punching has been completed.

Steel perforated square tube post shall be manufactured from steel conforming to the requirements of ASTM A 1011 and galvanized conforming to the requirements of ASTM A 653.

3. Inspection:

The Contractor will be required to furnish with each order or post a notarized mill test report showing the results of the physical and chemical tests made on the steel from which the posts are fabricated. The manufacturer will also furnish certification that galvanizing is in accordance with the specified ASTM specifications.

4. Sign post – below line items will meet the outlined length and description in table below:

Item ID #	Length	Description
1000079089	Sign post 9'0" length	Steel u/post (min. SXX = 0.225) (min. wt. 2#/ft)
1000135409	Sign post 9'0" length	Perforated sq. Tube (min. SXX = 0.172) (min. Wt. 1.70#/ft)
1000072588	Sign post 10'0" length	Steel u/post (min. SXX = 0.225) (min. wt. 2#/ft)
1000072680	Sign post 10'0" length	Perforated sq. Tube (min. SXX = 0.172) (min. Wt. 1.70#/ft)
1000071740	Sign post 12'0" length	Steel u/post (min. SXX = 0.403) (min. wt. 3#/ft)
1000072681	Sign post 12'0" length	Perforated sq. Tube (min. SXX = 0.372) (min. Wt. 2.41#/ft)
1000072589	Sign post 14'0" length	Steel u/post (min. SXX = 0.511) (min. wt. 4#/ft)
1000072679	Sign post 14'0" length	Perforated sq. Tube (min. SXX = 0.499) (min. wt. 2.77#/ft)

3.3. Category 3 - Pavement Markings

Applies to QPL Item ID #: 1000135447, 1000135448, 1000135449, 1000136245, 1000134250, 1000134249, 1000022302, 1000022303, 1000134476, 1000022300, 1000022301, 1000134497, 1000134477, 1000023891, 1000134487, 1000134486, 1000072349, 1000072350, 1000072346, 1000072347, 1000072348, and 1000136243

a) No Pre-Heat Preformed, Pre-Beaded, Thermoplastic Pavement

This material shall meet the requirements of specification titled "Preformed, Thermoplastic Pavement Markings", and the additional requirements listed below.

The material shall have a surface coating of glass beads having a minimum reflective index of 1.50, a minimum of 80 percent rounds and an application rate of 1 pound per 12 square feet. The beads shall meet the following graduation requirements:

Microns	US Sieve	% Retained
1400	14	0-3
1000	18	10-30
800	20	30-60
600	30	50-80
500	35	60-85
300	50	95-100
200	70	95-100
125	120	98-100
	Pan	100

1. Description:

This material shall meet the requirements of subsection 919.01, 919.02, and 919.03 of the Standard Specifications for Road and Bridge Construction, dated January 2021 and any subsequent revisions; with the exception of the relevant differences due to the material being preformed. Preformed material shall be applied by the heat of a torch capable of fusing the material to both asphalt and concrete pavements.

2. Requirements:

Glass beads shall be evenly dispersed throughout the material. A minimum of 35% by weight intermixed. The material shall be supplied at a minimum thickness of 125 mils (.125 inch).

3. Application:

The material must be able to be applied without minimum requirements for ambient and road temperatures and without any preheating of the pavement

to a specific temperature. The material shall be applied to clean and moisture free surface. Material must have visual heating indicators to aid in application.

4. Designs:

Products shall be available in letters, legends, directional arrows, stop bars, RXR etc., following section 919.03 as listed on this contract.

3.4. Category 4 - Delineators

Applies to Item ID #: 1000134394, 1000134392, 1000116035, 1000165585, 1000023477, 1000020440, 1000165586, 1000072401, and Bid Item 197

Applies to QPL Item ID #: 1000135482, 1000072585, and 1000072584

a) Linear Delineation System

This specification covers structured wide-angle retro-reflective panels designed for segmented or continuous marking of concrete barriers and/or guardrails. Each panel shall be designed to attach/adhere to, and shall be compatible with, concrete safety barriers and/or highway guardrails. The panels shall be designed to provide highly effective, long-life daytime and nighttime visibility in typical roadway barrier configurations.

Each panel shall be constructed of cube-corner retro-reflective material in standard highway colors permanently bonded to an aluminum substrate. The panels shall be available in white, red, fluorescent yellow and fluorescent orange colors.

The panel assembly shall have 14 repeating raised lateral ridges every 2.25 inches. Each ridge shall be 0.34 inches high with a 45 degree profile and a 0.28 inch radius top. Each panel shall not be less than 34 inches in length. Panels shall be available in 4.00 inch and 6.00 inch widths. The lateral edges of each panel shall be hemmed.

Conformance to the daytime color requirements shall be determined from measurement of the retro-reflective sheeting applied to aluminum test panels. Daytime color shall be measured instrumentally using a spectrophotometer employing annular 45/0 (or equivalent 0/45) illuminating and viewing geometry.

Measurements shall be in accordance with ASTM E1164 for ordinary colors or ASTM E2153 for fluorescent colors.

Chromaticity coordinates shall be calculated for CIE illuminant D65 and the CIE 1931 (20) standard colorimetric observer in accordance with ASTM E308 for ordinary colors or ASTM E2152 for fluorescent colors.

Item ID #	Length	Description
1000135407	Post 6'6" length	Steel u-post (min. SXX = 0.225) (min. wt. 2#/ft)
1000135410	Post 6'6" length	Perforated sq. Tube (min. SXX = 0.172) (min. Wt. 1.70#/ft)
1000135408	Post 7'6" length	Steel u/post (min. SXX = 0.225) (min. wt. 2#/ft)
1000072592	Post 7'6" length	Perforated sq. Tube (min. SXX = 0.172) (min. Wt. 1.70#/ft)

b) Type II Barricade (Plastic)

The barricade shall be made of high density, impact resistant, white polyethylene plastic that has been stabilized against ultraviolet radiation. The barricade shall be an "a" frame design with two 24 inches wide crossbars on each side capable of accepting 8 inch reflective sheeting. The sheeting shall be encapsulated meeting MUTCD Section 112.02 of alternating orange and white stripes. The stripes shall be 4 inches wide and shall slant at an angle of 45 degrees, one pair from upper right to lower left and one pair from upper left to lower right. Sheeting on the crossbars shall be separated by at least 12 inches. The barricade shall be 45 inches tall and constructed so the two sides can fold together when not in use. Some parts of the barricade shall be hollow and able to accept sand or water as ballast that will provide stability. A bracket or holes shall be provided for mounting flashing lights with standard bolts. Barricades shall conform to all other requirements of the MUTCD.

c) Type III Barricade (Metal)

The barricade shall consist of three horizontal rectangular rails parallel to each other and one directly above the other. Each rail shall be a minimum width of 48 inches and have a minimum height of eight inches. The distance from the top of the topmost panel to the ground surface shall be a minimum of five feet. The rails shall be made of 0.100-inch-thick flat sheet aluminum and shall be covered with reflective sheeting meeting Type B or better as specified by AASHTO M 268, with red and white alternating stripes. The barricades shall be connected to "U6" post supports

measuring a minimum length of eight feet, six inches with a 5/16" hex or square head bolt through a 5/16" nylon washer and secured with a 5/16" hex or square tamper-proof nut and a 5/16" flat washer tightened to a snug fit only leaving no greater than a maximum of 1/2" of the bolt showing.

d) Flexible Drum Barricades

Requirements:

The drums shall be a minimum of 36 inches in height and 18 inches in width. Drums having one or more flat sides to preclude rolling shall appear cylindrical to the driver and when properly oriented to the traffic have a minimum width of 18 inches. They shall be designed with a snap on type removable base and shall allow nesting for convenience in storage and handling. The base shall contain a storage compartment for ballast. They shall be stable from overturning when ballasted.

The drums shall be reflectorized and pigmented/molded in orange color throughout and stabilized against fading by exposure to the elements including ultra-violet light rays. The markings on the drum shall be horizontal, circumferential, alternating fluorescent orange and silver-white retroreflective stripes. Each drum shall have a total of four retroreflective stripes consisting of a minimum of two six-inch-wide fluorescent orange retroreflective stripes and two six-inch-wide silver-white retroreflective stripes. Retroreflective striping shall be installed in alternating colors with the top stripe being fluorescent orange. The non-reflectorized space between the horizontal reflectorized stripes shall not exceed 2 inches. The six-inch-wide retroreflective stripes shall be laid out in accordance with the current edition of the MUTCD Section 6K.06 (2009 MUTCD, 6F.67). Reflectorization shall be done with high intensity retroreflective sheeting and the retroreflective stripes that meets or exceeds AASHTO M 268, Type B at the top of the drum. The silver-white materials shall be of the same manufacturer as the fluorescent orange materials.

The top section of the drums shall have a mounting bracket capable of attaching one (1) type A or type C barricade warning lights and/or barricade board.

The mounting bracket shall be sufficient design to maintain the barricade lights after numerous impacts.

The design shall be such that would allow drainage from recessed areas on the top surface.

A self-certification affidavit is required from the Contractor addressing the products compliance with NCHRP 350 recommendations and shall be submitted along with the Evaluation Model to the Solicitation Coordinator.

e) Plastic Traffic Channelizing Cone

Dimensions and weight requirements:

- 48 in. high channelizer with a slim design
- 4 in. stripes of type III sheeting
- Molded-in holes for mounting lights and signs
- 16 pounds solid rubber base
- NCHRP certified and meets MUTCD standards
- High density polyethylene
- 49.25 in. x 7.6 in.
- Color: Orange

Refer to Attachment C: Plastic Traffic Channelizing Cone for example.