

SECTION D – SPECIFICATIONS/SCOPE OF WORKGROUPS I, II, III & IV - SPECIFICATIONS FOR ALUMINUM TRAFFIC SIGN BLANKS

**ITEM** - This specification covers aluminum traffic sign blanks of various sizes to be used with the application of standard reflective sheeting.

**MATERIAL** - All traffic sign blanks shall be 5052-H38 or approved equal aluminum alloy which shall be anodized, degressed and etched. Edges shall be smooth and free of burrs and sharpness.

**SIZES** - The County will order signs on an item by item basis. In order to provide for cases where the County may require a sign blank of a size that is not listed on the Quotation Sheets, bidders shall also provide prices on a square footage basis for each thickness of blank.

**THICKNESS** - There shall be four standard thicknesses (gauges) for sign blanks; .063", .080", .100", and .125". The thickness required for the various size blanks shall be:

- a. .063" Thick: 6" x 12", 6" x 24", 6" x 30", 6" x 36" 9" x 12", 9" x 30", 9" x 42", 9" x 48", 12" x 9", 12" x 12", 12" x 18", 12" x 24", 12" x 48", 18" x 6", and 18" x 18".
- b. .080" Thick: 12" x 28", 12" x 36", 12" x 42", 15" x 21", 18" x 24", 18" x 48", 18" x 72", 18" x 84", 18" x 96", 24" x 24", 24" x 30", 24" x 36", 24" x 48", 24" x 72", 30" x 30", 30" x 36", 30" x 42", 30" x 48", 30" x 60", 36" x 12", 36" x 24", 36" x 36", 36" x 48", 36" x 72", 36" x 84", 36" x 96", 48" x 48".
- c. .100" Thick: 9" x 42", 12" x 42", 12" x 48", 24" x 48", 24" x 60", 30" x 42", 30" x 48", 36" x 36", 36" x 48", 42" x 30", 48" x 36", 36" x 36" x 48" Pennant.
- d. .125" Thick: 18" x 72", 18" x 84", 18" x 96", 30" x 60", 36" x 72", 36" x 84", 36" x 96", 48" x 48", 48" x 72", 48" x 96", 60" x 96".

Corners shall be rounded, die-cut, and have radius dimensions as shown on the drawings in Section G. Some sign blank sizes/shapes shall have all or some non-rounded corners, as noted on the drawings. Sign blank sizes for which no drawing is included shall have radius corners with dimensions as specified by the County at time of ordering. (There are no drawings available for the following signs: **.063" thickness**: 6" x 30", 6" x 36", 9" x 30", 9" x 42", 9" x 48", 12" x 12", 12" x 48"; **.080" thickness**: 12" x 28", 12" x 42", 18" x 48", 18" x 72", 18" x 84", 18" x 96", 24" x 48", 24" x 72", 30" x 42", 30" x 48", 30" x 60", 36" x 12", 36" x 24", 36" x 36", 36" x 48", 36" x 72", 36" x 84", 36" x 96", 48" x 48"; **0.100" thickness**: 9" x 42", 24" x 60", 36" x 36" x 48" pennant, 42" x 30", 48" x 36"; and, **0.125" thickness**: 48" x 72", 48" x 96", 60" x 96". Drawings for signs which are not included in this solicitation will be sent to the Contractor at time of order. The drawings will include specifications for corner radii and holes locations on the blanks).

**MOUNTING HOLES** - Sign blanks shall normally be supplied with 3/8" diameter mounting holes to be drilled or punched in the sign blanks in the number and exact locations as shown on the drawings in Section G. Some sign blank sizes shall be supplied without holes, as noted on the drawings. Sign blank sizes for which no drawing is included shall have mounting holes in locations as specified by the County at the time of ordering.

**PACKAGING AND LABELLING** - All sign blanks shall be firmly packed and completely wrapped and bundled in suitable cardboard wrapping material to prevent damage in shipping and handling. Same size sign blanks shall be packed

or bundled separately and all shipments shall be securely strapped or mounted on skids. Each bundle shall be stamped with the number and size of the sign blanks packaged. The sign blank sizes shall be packed in accordance with **Table I** below. If a specific sign size is not listed below, it shall be packaged not to exceed 75 pounds.

**Table I**

<b>Signs per Package</b>	<b>Sign Size</b>
1	36" x 84", 36" x 96", 48" x 96", 60" x 96"
2	18" x 72", 18" x 84", 18" x 96", 30" x 60", 36" x 72", 48" x 48"
5	18" x 48", 24" x 48", 30" x 36", 30" x 42", 30" x 48", 36" x 36" x 48" Pennant, 36" Octagon, 36" Triangle, 30" Pentagon, 42" x 30", 48" x 24", 48" x 36", 48" x 72"
10	9" x 36", 9" x 42", 9" x 48", 12" x 36", 12" x 42", 12" x 48", 18" x 24", 24" x 24", 24" x 30", 24" x 36", 24" x 60", 24" x 72", 30" x 24", 30" x 30", 30" Octagon, 36" x 12", 36" x 24", 36" x 36", 36" x 48"
20	9" x 12", 9" x 24", 9" x 30", 12" x 9", 12" x 12", 12" x 18", 12" x 24", 12" x 28", 15" x 21", 18" x 18", 24" x 12"
25	6" x 12", 6" x 18", 6" x 24", 6" x 30", 6" x 36", 18" x 6"

**GROUP V - SPECIFICATIONS FOR ALUMINUM BUS STOP SIGN BLANKS**

**ITEM** - This specification covers aluminum bus stop sign blanks of various sizes to be used with the application of standard reflective grade sheeting.

**MATERIAL** - All blanks shall be 5052-H38 or approved equal aluminum alloy that shall be anodized, degreased and etched. Thickness shall be .063 inches for 12" x 12" blanks.

**CORNERS** - ALL 12" X 12" shall have 3/4" radius rounded corners die cut. All edges must be free of burrs and sharp edges.

**MOUNTING HOLES** - 3/8" diameter mounting holes shall be drilled or punched in the blanks

**PACKAGING AND LABELLING** - All bus stop sign blanks shall be firmly packed and wrapped in shipping cardboard to prevent damage in shipping and handling. The blanks shall be shipped in packaged amounts of 20 each and each package shall be marked with the size and type of sign blanks and the quantity packaged. The packages shall be securely strapped or mounted on skids.

**GROUP VI - SPECIFICATIONS FOR ALUMINUM STREET NAME SIGN BLANKS**

**ITEM** - This specification covers aluminum street name signs (SNS) blanks of various sizes to be used with the application of standard reflective sheeting.

**MATERIAL** - All street name sign blanks shall be 5052-H38 or approved equal aluminum alloy which shall be anodized, degreased and etched. Thickness shall be .125 inches for all aluminum street name sign blanks.

**SIZE** - The dimensions shown are to be considered as guide only. Height of blanks shall be 9" as specified. Length of blanks shall be as specified, from 24" to 48" in six inch increments.

**CORNERS** - Corners shall be die cut 3/4" radius

**MOUNTING HOLES** - No mounting holes shall be drilled or punched.

**PACKAGING AND LABELLING** - All street name sign blanks shall be firmly packed and completely wrapped in cardboard so as to prevent damage in shipping and handling. Each package shall be marked with the size of sign blanks and quantity packaged. Same sizes shall be packed or bundled separately and all shipments shall be securely strapped and mounted on skids. Street name sign blanks shall be packed in accordance to **Table I** above.

**GROUP VII & VIII -SPECIFICATIONS FOR FINISHED ALUMINUM TRAFFIC SIGNS (BLANKS WITH APPLIED SIGN FACES)**

**ITEM** - This specification covers fully finished traffic signs comprised of aluminum sign blanks to which standard prescreened reflective engineer grade, high intensity, VIP or diamond grade sign faces have been applied.

**SIZES, SHAPES, AND LEGENDS** - Sizes, shapes, and legends shall be as called for on an item basis. In order to provide for cases where the County may require a sign of a size or shape that is not listed on the Quotation Sheets, Bidders must also provide prices for square footage for thickness of 0.063, 0.080, 0.100, and 0.125 for High Intensity Prismatic and Full Cubed Prismatic Finished Signs.

**MATERIALS – BLANKS** - Except as otherwise specified under "Mounting Holes", blanks used to fabricate fully finished signs shall comply in all respects (thickness, type of metal, radius corners, hole punching, and all other features) with the Montgomery County Specifications for Group VI Aluminum Traffic Sign Blanks as contained in these specifications.

**MOUNTING HOLES** - Mounting holes shall be 3/8" diameter and shall be drilled or punched in the signs in the number and exact locations (there are different hole patterns from those for blank signs) as shown on the drawings in Section G. There are no drawings for the following signs: 24" x 12" and 30" x 24".

Any finished sign for which no hole pattern drawing is provided shall have mounting holes as specified by the County at the time of ordering.

**SHEETING** - Faces shall be silk-screened using only the best quality High Intensity Prismatic, Full Cubed Prismatic, or Full Cubed Prismatic Florescent Yellow sheeting and in conformance with **Table II** below. Inks, coatings, process color pastes and clears, and other related sign fabrication material shall be manufactured by the County's current sheeting contractor, which at the time of this solicitation, is 3M Company. Streaking, bubbling, peeling, running of colors, or any other indication of improper screening or application of faces to blanks will be unacceptable. Any signs showing evidence of such problems will be rejected by the County and must be replaced at no additional cost to the County.

**TABLE II**

<b>Montgomery County Sign Sheeting Specifications</b>		
<b>ASTM* Type</b>	<b>Description</b>	<b>Sheeting Colors</b>

Type IV	High Intensity Prismatic	All basic sign colors
Type XI	Full Cubed Prismatic	All sign colors
Type XI	Full Cubed Prismatic	Florescent Yellow & Florescent Yellow Green
* <i>American Society for Testing and Materials</i>		

Materials shall be new, shall be on Maryland State Highway Administration's (MSHA) Qualified Product List (QPL), and shall be covered under manufacturers' warranty (field performance guarantee). Also see the section of these specifications entitled "Warranty."

Faces shall be designed and laid out with color, dimensions, spacing, letter series, etc., in exact conformance with the latest edition of the Maryland Manual of Uniform Traffic Control Devices (MdMUTCD), or County supplied sign fabrication layout. Punching of holes in the aluminum blanks, as called for in the specifications, shall be done prior to application of the faces on the blanks. No holes shall be punched in the face. Finished signs shall be of the best state of the art quality that should be acceptable to the County's and MSHA's sign shops, ready to be installed on the street; and shall be equal in quality to the traffic signs produced by the best state-of-the-art County and MSHA sign shop methods.

**TABLE III**

**FIELD PERFORMANCE/WARRANTY REPLACEMENT REQUIREMENTS**

Minimum coefficient of retro- reflectivity ( $R_A$ )  $\text{cd}/\text{fc}/\text{ft}^2$  ( $\text{cd}\cdot\text{lx}^{-1}\cdot\text{m}^{-2}$ )  
(at -2 degrees observance angle and -4 entrance)

Sheeting Type	Sheeting Colors							Years of Effective Performance Life	Replacement Requirement
	White	Yellow	Red	Blue	Green	Brown	Orange		
High Intensity Prismatic (ASTM Type IV)	448	336	67	24	45	14	116	0-7 years	A
	392	294	59	21	39	13	102	8-10 years	B
Diamond Grade (3) Cubed (ASTM Type XI)	464	348	70	21	46	14	160	0-3 years	A
	406	304	61	18	41	12	140	4-7 years	B

\*NOTE: All measurements shall be taken after sign cleaning in accordance with sheeting manufacturer's recommendations. For screen printed transparent colored areas on white sheeting, the coefficient of retro-reflection shall not be less than 50% of the values for the corresponding color in Table III.

**Warranty Replacement Requirement "A":** The Contractor shall reimburse to county all costs (sign blank, sheeting, faces, process colors, labor, shipping, etc.) of restoring sign to new condition, or the Contractor shall provide new sign at no cost to the Country.

**Warranty Replacement Requirement "B":** The Contractor shall provide to County the sheeting or faces required to restore sign face to new condition, at no cost to the Country.

**WARRANTY** – The Contractor shall provide and extend to Montgomery County the following field performance obligation/warranty replacement for all finished signs that the contractor furnishes under this contract: The signs shall perform effectively in the field for the number of years stated in **Table III** of these specifications. The performance shall

be considered unsatisfactory if, during the periods stated in **Table III**, it can be shown that the sign has deteriorated due to natural causes to the extent that either:

- The sign face materials/scripts are not legible for their intended purpose when viewed from a moving vehicle under normal day and night driving conditions; or
- The coefficient of retro-reflection is less than the minimum specified for that color sheeting as listed in **Table III**.

For any sign found not meeting the retro-reflectivity requirements specified in **Table III**, the vendor shall meet the Warranty Replacement Requirement as specified in **Table III**. The date (month and year) of installation shall constitute the start of the field performance obligation period.

**SUBMISSION OF WARRANTY AND INKS AGREEMENTS-** Attached to his/her bid, **the bidder must submit a signed written statement certifying that the bidder will meet the above specified field performance obligation/warranty replacement provisions on all finished signs to be supplied to Montgomery County under this Contract** (Attachment J). This is a special requirement above and beyond sheeting manufacturer's warranty. Alternatively, **the bidder may provide a letter from the manufacturer certifying that the manufacturer will provide these specified special field performance obligation/warranty replacement provisions directly to Montgomery County for all finished signs that the contractor supplies to Montgomery County under this Contract**. Such certification will be considered partial evidence of the bidder's commitment and intention to fully meet the requirements of these specifications. Also attached to his/her bid, **the bidder shall submit a signed written statement certifying that the bidder will use inks, coatings, process color pastes and clears and other related sign fabrication materials that are produced by the County's sheeting manufacturer or of the type recommended by the County's sheeting manufacturer** (Attachment K). Such certification shall name the manufacturer and the manufacturer's identifying catalog numbers and descriptions of any inks, coating, process color pastes and clears that will be used that are not produced by the sheeting manufacturer.

**DESIGN AND LAYOUT OF FACES** - The legends and layout of finished traffic signs to be ordered by the County will generally be standard (the County may also order non-standard finished signs) as contained in the latest edition of the MdMUTCD, or County supplied sign fabrication layout. Faces shall be designed and laid out with color, dimensions, spacing, letter series, etc., in exact conformance with the latest edition of MdMUTCD, or County supplied sign fabrication layout (at the time of ordering, the County will supply camera-ready artwork for necessary logos, legends, etc.) for non-standard signs.

**FABRICATION METHODS** - Fabrication of signs may involve screening of faces and subsequent application of faces onto blanks, or application of reflective background material onto blanks and subsequent screening directly onto the covered blank.

The majority of the signs involve screening one color onto reflective sheeting of a second color. In some cases, screening of two colors or three colors onto reflective sheeting of another color is required.

The Contractor shall follow in exact detail the fabrication methods and procedures, for sign production, that are specified by the sheeting manufacturer. Silk screening equipment and materials and face application equipment shall be only the type that is recommended and approved by the sheeting manufacturer for use in converting the manufacturer's brand reflective products into finished signs. The County reserves the right to review and inspect the Contractor's equipment and methods and, in consultation with the sheeting manufacturer, specifically disapprove any equipment or materials or methods that, in the sole judgment of the County, would materially affect the quality of the finished signs.

**PACKAGING AND SHIPPING** - To prevent damage to finished signs during shipment to the County, the following packaging requirements shall be met:

- Finished signs shall be packed with 3M brand #SCW82 slipsheeting or approved equal and foam padding to protect each sign face. The glossy side of the slipsheeting shall be placed against the sign face and the sign shall be padded with closed cell packaging foam such as Dupont "Microfoam" or "Jiffy foam" or approved equal.
- Double faced signs shall have the slipsheeting (and padding as required) against each face of the sign.
- After packing as specified above, the signs shall be packaged, wrapped, bundled, and labeled in the quantities and manner specified earlier for blank signs.
- Packaging and shipping methods shall avoid putting the signs or faces under pressure and shall prevent movement or chafing that may cause damage during handling and shipping.
- Contractor shall ensure that packaged signs are shipped and stacked with the signs upright on their edges rather than flat on top of each other. As specified under "Delivery Instructions", sign deliveries not meeting these packing and packaging requirements will be refused by the County.
- Contractor shall be responsible for full replacement of any signs that are damaged in shipping, at no additional cost to the County.

**STREET NAME SIGN BRACKETS** - Bidders shall include descriptive literature, photos, scale drawings, etc., with their bid, or within ten (10) calendar days after request by the County, so as to enable a comparison of the brackets offered with the specifications. Failure to provide descriptive literature as outlined above may be cause for the bidder to be ruled non-responsible. Furthermore, the County reserves the right to require the submittal of a sample of the product prior to award to assure that the brackets offered meet the specifications and requirements of the County. If so requested, the bidder must submit the sample within ten (10) calendar days after request by the County. Failure to submit the sample as requested may be cause to rule the bidder non-responsible. Sample must be identified with the name of the bidder, bid number, and bid item number. The sample shall be free of charge and delivered at the bidder's expense. The County will have the right to destroy, alter, or mutilate the sample in examination for specifications or performance compliance without charge from the bidder. The sample may be removed within ten (10) business days after award of the contract, or, at the County's option be retained for the life of the contract. Failure to submit a sample may cause the bidder to be considered non-responsible. Please also see provision A.7 of this solicitation.

Street Name Sign Brackets specific requirements are as follows:

1. All brackets shall be cast of high strength aluminum alloy No. 380, under 400 tons of pressure, with a minimum tensile strength of 49,000 PSI, or approved non-corrosive alternate.
2. All brackets, after casting, shall be degreased, tumbled and polished to a low sheen smooth finish to assure resistance to the accumulation of dirt and weather borne deposits which might wash down from the sign(s) and cause premature defacement of the sign(s).
3. All sign slots (grooves) shall have no ruffling so as to assure level non-leaning sign installation, and shall be 7/8 inches deep.
4. All necessary setscrews, etc., for attachment of the brackets shall be provided with the brackets.
5. Dimensions shall be as shown in the relevant pages of Section G.

**PACKAGING AND LABELING** - Brackets and all screws, bolts, etc., shall be packaged in sturdy boxes. Each box shall contain 50 brackets and (in the same box) the necessary screws, bolts, etc., for those brackets.

**DELIVERY INSTRUCTIONS:** All materials shall be delivered to Montgomery County Sign Shop, located at 1283 Seven Locks Road, Building E, Rockville, MD 20854. Deliveries shall be scheduled and coordinated with James Clinton, or designee, at 301-279-1391. Advance notice of all deliveries shall be provided to Mr. Clinton, or designee, at least 48 hours prior to delivery. All deliveries shall be scheduled between the hours of 7:00 AM and 12:00 noon. Deliveries outside the specified timeframe will be refused by the County. All materials delivered shall be packaged as per these specifications. Deliveries not packaged in conformance with these specifications will be refused by the County.

**LIQUIDATED DAMAGES** - Material delivery shall be made within 30 business days after the receipt of a delivery order and a purchase order. With the understanding that Traffic Signs provide positive guidance for traffic safety, and that the County has a responsibility to the traveling public to ensure that the necessary Traffic Signs are present at all times, it follows that late deliveries of Traffic Sign panels could indirectly result in traffic safety issues for the motorists and pedestrians alike. Inasmuch as such safety issues could potentially cause liability concerns for the County, the County will deduct the sum of \$150.00 per business day from moneys due the Vendor, not as a penalty, but as liquidated damages for each scheduled shipment not delivered within the time specified. In addition, the County may assess Liquidated damages in the amount of \$150.00 per business day for Traffic Sign Panels rejected by the County which will be calculated from the original due date of the order until the County's receipt and acceptance of a new Traffic Sign Panel order, provided the Vendor is notified of the rejection by facsimile transmission within 24 hours of delivery. Traffic Sign Panels determined by the County to be defective at a later date, must be replaced by the Vendor within 30 business days of notification. Liquidated damages will continue until such time as the Traffic Sign Panels are received and rejected Traffic Sign Panels have been replaced with Traffic Sign Panels that are acceptable to the County. County holidays will be excluded from the computations for the assessment of Liquidated Damages.