Special Provision to Special Specification 668 Retroreflectorized Pavement Markings

Special Specification 668 "Prefabricated Pavement Markings," is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Article 2., "Materials," is supplemented by the following:

2.1. **Solid Green Thermoplastic Block.** Furnish in accordance with the following requirements;

Provide material composed of an ester-modified rosin impervious to degradation by motor fuels, lubricants, etc., in conjunction with aggregates, pigments, binders, and anti-skid/anti-slip elements uniformly distributed throughout the material. Ensure thermoplastic material conforms to AASHTO designation M249, with the exception of the relevant differences due to the material being supplied in a preformed state, being non-reflective, and being of a color different from white or yellow.

Use materials for green colored pavement (bicycle green) that are manufactured with appropriate pigment to ensure that the resulting colors comply with the Light Green color as specified in the FHWA memorandum dated 4/15/2011: "Interim Approval for Optimal Use of Green Colored Pavement for Bike Lanes (IA-14)."

- The daytime chromaticity coordinates allowed for the color used for green colored pavement are as follows:

1		2		3		4	
x	y	x	y	x	y	x	y
0.230	0.754	0.266	0.500	0.367	0.500	0.444	0.555

The minimum allowable daytime luminance factor (Y) is 7, and the maximum allowable is 35.

- The nighttime chromaticity coordinates allowed for the color used for green colored pavement are as follows:

1		2		3		4	
x	y	x	y	x	y	x	y
0.230	0.754	0.336	0.540	0.450	0.500	0.479	0.520

Provide a durable, high skid and slip resistant, pavement marking material suitable for use as bike lane, bike path, bus lane, roadway, intersection, airport, commercial, or private pavement delineation and markings. For use on asphalt or portland cement concrete pavement surfaces.

Provide material that is resilient light green color preformed thermoplastic product which contains a minimum of thirty percent (30%) intermixed anti-skid/anti-slip elements with a hardness range of 7-9 (Mohs scale), and where the top surface contains anti-skid/anti-slip elements with a hardness of 9 (Mohs scale).

Provide material that is resistant to the detrimental effects of motor fuels, antifreeze, lubricants, hydraulic fluids, etc.

Provide material that is capable of being applied on bituminous or portland cement concrete pavements by the use of a handheld heat torch, or infrared heater.

Provide material that is capable of being applied to asphalt and portland cement concrete surfaces without

preheating the application surface to a specific temperature.

Provide material that is capable of conforming to pavement contours, breaks, and faults through the action of traffic at normal pavement temperatures.

Provide material that is capable of being applied in temperatures down to 45°F (7.2°C) without any special storage, preheating, or treatment of the material before application.

Provide material that contains heating indicators evenly distributed on the surface that act as visual cues during both the application process and post-application.

If required, provide white, retroreflective and skid resistant preformed thermoplastic symbols and word legends that may be incorporated into the skid/slip resistant material background in an interconnected fashion, such that the two materials are factory assembled together and applied as a single layer.

2.1.1. **Heating indicators**. Ensure the top surface of the material has regularly spaced indents. The closing of these indents during application acts as a visual cue that the material has reached a molten state, allowing for satisfactory adhesion and proper embedment of the anti-skid/anti-slip elements, and a post-application visual cue that proper application procedures were followed.

2.1.2. **Skid Resistance.** Provide the surface of the preformed thermoplastic material with factory applied anti-skid elements with a minimum hardness of 9 (Mohs scale). Upon application, ensure the material provides a minimum skid resistance value of 60 BPN when tested according to ASTM E 303.

2.1.3. **Slip Resistance.** Provide the surface of the preformed thermoplastic material with factory applied anti-skid elements with a minimum hardness of 9 (Mohs scale). Upon application, ensure the material provides a minimum static coefficient of friction of 0.6 when tested according to ASTM C 1028 (wet and dry), and a minimum static coefficient of friction of 0.6 when tested according to ASTM D 2047.

2.1.4. **Thickness.** Provide material with a minimum thickness of 90 mils (2.29 mm) or 125 mils (3.15 mm).

2.1.5. **Environmental Resistance.** Provide a material that is resistant to deterioration due to exposure to sunlight, water, salt, or adverse weather conditions and impervious to oil and gasoline.

Article 3. "Construction" is supplemented by the following:

3.8. **Solid Green Thermoplastic Block.** Comply with the following requirements;

3.8.1. **Application:**

3.8.1.1. **Asphalt**. Use material capable of being applied using the propane torch method, and/or infrared heater recommended by the manufacturer. Use material that is capable of being applied at ambient and road temperatures down to 45°F (7.2°C) without any preheating of the pavement to a specific temperature. Apply a sealer specified by the manufacturer to the pavement surface before material application to ensure proper adhesion. The sealer must be supplied by the material manufacturer in 300/600 ml cartridges along with sealer application supplies. A thermometer is not required during the application process. Ensure the pavement is clean, dry, and free of debris. Supplier must enclose application instructions in English and Spanish with each box/package only pertaining to an application method that does not require preheating of the pavement to a specific temperature before application.

3.8.1.2. **Portland Cement Concrete**. Use the same application procedure as described under the asphalt section.

3.8.2. **Packaging.** Use preformed thermoplastic markings that are packaged in cardboard cartons. The cartons in which packed must be non-returnable, contain a minimum of 35% post-consumer recycled materials, and a maximum of 40 in. (1.02 in) in length and 25 in. (0.64 m) in width. Ensure the cartons are labeled for ease of identification and that weight of the individual carton does not exceed 70 lb. (32 kg). A protective film around the carton must be applied to protect the material from rain or premature aging.

3.8.3. **Technical Services.** The successful bidder is to provide technical services as required. Regionally-located manufacturer's

representative, employed directly by the manufacturer, can provide no-cost on-site training for proper application.

Article 4. "Measurement." The first sentence is voided and replaced by the following:

This Item will be measured by the foot, square foot or by each word, shape or symbol.