

SUPPLEMENTAL SPECIFICATION

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APPROVED:  
Division Administrator

By: \_\_\_\_\_  
FEDERAL HIGHWAY ADMINISTRATION

**SECTION 633**

**SINGLE COMPONENT HYBRIDIZED POLYMER PAVEMENT MARKINGS**

**633.1 Description**

- 1 This section contains specifications for the materials, equipment, construction, measurement, and payment for furnishing and applying permanent, durable single component hybridized polymer pavement markings within the limits of the project to delineate the travel lanes and channelize traffic.
- 2 This work includes providing appropriate traffic control and any other measures necessary to protect the markings during installation until such time as the markings exhibit no-track qualities. In general, the markings are to be applied as shown in the plans for new construction or replaced in the existing configuration for resurfacing work, unless otherwise directed by the Engineer. Work also includes determination of passing/no passing zones on two lane facilities in accordance with the MUTCD in cases where existing passing/no passing zones have not been established. Provide the Department with data used in establishing passing/no passing zones.

**633.2 Materials**

**633.2.1 Single component hybridized polymer Pavement Marking Material**

- 1 Provide single Component Hybridized Polymer pavement markings that are durable retro-reflective (white or yellow) and non-retroreflective (black) pavement marking materials of the colors and patterns indicated on the Plans or Special Provisions. Supply all the necessary equipment and materials for proper surface preparation and correct application of the pavement marking material.
- 2 Provide markings consisting of a single component hybridized polymer coating material capable of being applied by truck-mounted spray equipment. Ensure the material is capable of being applied at a minimum ambient air temperature of 38°F. Ensure that the material is capable of retaining glass bead systems to provide specified values of retro-reflectivity. Provide material that is suitable for application on all types of concrete and asphalt pavement surfaces.
- 3 Provide a material that will not separate or settle in original packaged form for a period of not less than 6 months from date of manufacture.
- 4 Provide a single component hybridized polymer that may be reapplied over the original single component hybridized polymer material without requiring the removal of the original residual material provided the original material shows no signs of failure due to poor adhesion to the pavement surface.

**633.2.1.1 Single Component Hybridized Polymer Coating Material**

**633.2.1.1.1 Formulation**

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- 1 Provide a durable single component material capable of producing a rapid no-track condition. Ensure that the material is free of heavy metals. Provide a flexible, UV stable material that may be applied at a typical wet film thickness of 25 mils.

**633.2.1.1.2 Composition**

- 1 Ensure the pigments for single component hybridized polymer material fall within the following limits:

<b>Pigments:</b>	<b>White</b>	<b>Non Lead Yellow</b>	<b>Black</b>
Titanium Dioxide*	18-25%	14-17%	-----
Organic Yellow	-----	7-8%	-----
Black	-----	-----	18-25%
Single Component Hybridized Polymer Resin	75-82%	75-79%	75-82%

\* ASTM D 476, Type II & III

**633.2.1.1.3 Color**

- 1 Ensure that the single component hybridized polymer marking materials, without drop-on beads, visually match the color chips that correspond to the Federal Standard Number 595B for the following colors:

White	17925
Yellow	33538
Black	37038

Apply the single component hybridized polymer compound, white, yellow and black, to 2 sets of 3-inch x 6-inch steel plates at 20 mils ( $\pm 1$  mil) in thickness, without glass beads as specified. Expose the prepared samples in accordance with ASTM G 154 Cycle 1. Ensure that the color of the single component hybridized polymer materials is within 5 units of the Federal Standards shown above.

- 1 **633.2.1.1.4 Yellowness Index (ASTM G 154 Cycle 1)**

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Check for compliance as follows:

- Cure 72 hours after sample preparation.
- Take yellow index reading, Lab C/2 degrees, following the 72-hour cure and preceding QUV (ASTM G 154 Cycle 1)
- Maximum before QUV, 6.0.
- Place sample in QUV for 72 hours.
- Maximum after QUV, 9.0

### **633.2.1.1.5 Directional Reflectance (ASTM E 1347)**

The Directional Reflectance after QUV using C2 degrees is as follows:

White	85 Minimum
Yellow	50 Minimum

### 1 **633.2.1.1.6 Elongation**

Ensure that the single component hybridized polymer provides an elongation of greater than 40% when tested in accordance to ASTM D 638, Type IV average of 3 at 7 days.

### 1 **633.2.1.1.8 Toxicity**

Provide material that does not exude fumes that are toxic or injurious to persons or property when heating to application temperature.

### 1 **633.2.1.1.9 Viscosity**

Ensure that the formulation is such that the viscosity, when tested to ASTM D 562 provides Krebs Unit (KU) measurement of 90 – 105.

### 1 **633.2.1.1.10 Drying Time**

- 2 Ensure that the single component hybridized polymer marking material, when applied at 20 mils ( $\pm 0.5$  mil) wet film thickness at 75°F ( $\pm 2^\circ$ F) and with the proper saturation of glass spheres, exhibits "no tracking" time less than 5 minutes when tested in accordance with ASTM D 711.

Ensure that the single component hybridized polymer marking material, when applied in the field at 25 mils ( $\pm 0.5$  mil) wet film thickness between 38°-110°F and with proper saturation of glass spheres, exhibits "no tracking" time less than 10 minutes.

### 1 **633.2.1.1.11 Curing**

Ensure that the single component hybridized polymer materials are capable of fully curing under a constant pavement surface temperature of 32°F or above.

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### 1 **633.2.1.1.12 Adhesion to Concrete**

Ensure that the single component hybridized polymer pavement marking materials, when tested according to ACI Method 503, have such a higher degree of adhesion to the specified concrete (4000 psi minimum) surface that it results in a 100% concrete failure in the performance of this test. Condition the prepared specimens at room temperature for a minimum of 24 hours and a maximum of 72 hours before the performance of the tests indicated.

### 1 **633.2.1.1.13 Hardness**

Ensure that the single component hybridized polymer pavement marking materials, when tested according to ASTM D 2240, has a Shore D Hardness greater than 30. Cure samples at room temperature for a minimum of 24 hours and a maximum of 72 hours before performing the tests indicated.

### 1 **633.2.1.1.14 Abrasion Resistance**

Evaluate the abrasion resistance on a Taber Abrader with a 1000-gram load and CS-10 wheels at duration of 1000 cycles. Calculate wear index based on ASTM C 501. Make certain that the wear index for the catalyzed material is not more than 50. Run the tests on cured samples of material, which have been applied at a film thickness of 15 mils ( $\pm 0.5$  mil) to code S-16 stainless steel plates (to be run without glass spheres). Cure the samples at room temperature for a minimum of 24 hours and a maximum of 72 hours before performing the tests indicated.

## **633.2.2 Glass Beads**

### **633.2.2.1 Composition**

Ensure that the silica content of the beads is not less than 60%.

### **633.2.2.2 Physical Characteristics**

Ensure that the glass spheres are colorless, clean, transparent, and free from milkiness or excessive air bubbles. Ensure that the glass beads have a minimum refractive index of 1.5 when tested by the liquid immersion method at 77°F. Use beads that are essentially free of sharp angular particles and particles showing surface scarring or scratching.

### 1 **633.2.2.3 Gradation**

Ensure that Type 1 and Type 4 glass beads meet the requirements of AASHTO M 247 with the following exceptions:

Glass beads are a minimum of 80% true spheres when tested according to ASTM D 1155 and meet the gradation requirements when tested in accordance with ASTM D 1214 shown in the following table.

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Sieve Size	Percent by Mass Passing Designated Sieve (ASTM D 1214)	
	Grading Designation	
	Type 1 (AASHTO)	Type 4 (FP-96)
No. 8	---	---
No. 10	---	100
No. 12	---	95 - 100
No. 14	---	80 - 95
No. 16	100	10 - 40
No. 18	---	0 - 5
No. 20	95 - 100	0 - 2
No. 25	---	---
No. 30	75 - 95	---
No. 40	---	---
No. 50	15 -35	---
No. 80	---	---
No. 100	0 - 5	---

### 1 **633.2.2.4 Bead Coating**

Ensure that all beads are embedded and moisture proof coated with Potters Industries AC-100 series or an equivalent performance ensuring coating. Test the embedment coating by the Dansyl Chloride Method. Test the moisture proof coating by the following method:

A. Equipment:

1. Teaspoon
2. 500 ml Beaker

B. Procedure:

1. Put about 400 ml of cold water in the beaker.
2. Fill a spoon with the coated beads and gently immerse them into the water.
3. Tap the spoon to force the mass of beads to fall to the bottom to the beaker. The material should maintain its initial shape for at least one hour. Some beads may fall from the agglomerated mass; however, there should not be considerable dropping of beads before one hour.

### 1 **633.2.3 Certification**

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Obtain from the manufacturer of the single component hybridized polymer material, final certification that each batch of material furnished meets the requirements of these specifications. Also, obtain from the manufacturer of the glass beads, certifications that each batch of material furnished meets the requirements of these specifications. Ensure that the certifications provided for the marking material or glass beads indicate the batch numbers utilized and include the manufacturer's production control tests for each batch. Make certain that certifications also include the manufacturer's material safety data sheets. Furnish copies of the certifications to the RCE before the work commences.

### 1 **633.2.4 Department Samples**

The Department reserves the right to perform in-plant sampling of the finished single component hybridized polymer material or glass beads during packaging operations and/or sampling of the packaged single component hybridized polymer material or glass beads after they are received. The Department, in whatever manner it deems necessary, may test the samples. Department inspectors or their designated agents will observe performance of all sampling. The inspectors will designate at random two containers from each batch to be sampled for testing and enclose a copy of the sampling inspection with the samples.

### 1 **633.2.5 Marking and Packaging**

Provide all materials utilized in the performance of this work in the manufacturer's original, undamaged packaging. Ensure that this packaging clearly shows the following information:

- Name of the manufacturer,
- Type of material packaged,
- Weight or volume of the material enclosed
- Batch or lot numbers,
- Date of manufacture and,
- Color, if applicable.
- 

## **633.3 Equipment**

### 1 **633.3.1 Equipment for Single component hybridized polymer Pavement Markings**

- 2 Use equipment for applying the single component hybridized polymer material that is truck-mounted and capable of applying the material at the manufacturer's recommended application temperature. Ensure that the equipment is capable of automatically dispensing beads immediately following application of the single component hybridized polymer material using a double drop system.
- 3 Use marking equipment that is capable of applying the single component hybridized polymer material at a uniform thickness of up to 25 mils, and in addition, is capable of dispensing beads at a constant rate of 25 pounds per gallon of marking material.

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- 4     Make certain that the application equipment can distribute glass beads as required in **Subsection 633.4.3.1**.
- 5     Ensure the application equipment is mobile and maneuverable, can follow straight lines, and can make normal curves in a true arc. Use equipment that is constructed to ensure continuous uniformity in the dimensions of the applied markings.
- 6     Ensure the equipment is capable of cleanly cutting off square stripe ends and provides a method of automatically applying "skip" or longitudinal lines, including right and left edge-lines, or any combination of single or double line configurations (color and pattern) as illustrated in the *MUTCD*. In addition, ensure that the controls are such that the operator can override set automatic cycles in order to extend a line or to begin a new cycle at any selected point.
- 7     Use equipment that is capable of producing markings of varying widths as indicated in the *Pavement Marking Plans*, the *MUTCD*, the *Standard Drawings*, or the Contract specifications.
- 8     Make certain that the equipment travels only in the direction of normal traffic flow during marking operations.
- 9     Ensure that the equipment is configured to allow the operator to see the pressure gauges for each type of proportioning pump at all times so that any fluctuation or pressure difference can be detected immediately.
- 10    Make certain that 6 digit electrical foot counters with a reset feature are installed on the marking equipment to individually tabulate the amount of footage applied by each striping gun.

Equip the marking equipment with a pressure regulated air jet that spray all debris from the pavement in advance of the applicator guns that operate when marking material is applied. Synchronize the jets with marking material application or remain "on" at all times.

### 1     **633.3.2 Equipment on Site**

Ensure that the equipment necessary for the proper construction of the work is on site, in acceptable working condition, and approved by the RCE as to both type and condition before the start of work under this section. Provide sufficient equipment to enable prosecution of the work in accordance with the project schedule and completion of the work in the specified time.

## **633.4 Construction**

### 1     **633.4.1 Preparation of Surface**

- 2     Ensure that the pavement is dry and free of glaze, oil, dirt, grease, or other foreign contaminants. Where directed by the RCE, remove any existing markings that conflict with the *Pavement Marking Plans* by an approved method before the application of single component hybridized polymer material. Use approved removal methods, which are shot blast, sand blast, or grinding.

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- 3 In cases where the existing symbol markings (arrows, words, etc.) differ from or are in conflict with the Plans, the *MUTCD*, or the *Standard Drawings*, the judgment of the RCE will determine which to follow. For symbol marking relocation or replacement, remove 95% of the conflicting markings by buffing, water blasting, sand blasting, or otherwise ensuring that the pavement surface is in proper condition for adequate bonding of the new single component hybridized polymer markings. Include the cost of removal in the bid prices for placement of the new symbol markings.
- 4 On Portland cement concrete surfaces including bridge decks, remove at least 95% of any existing markings by an approved method to provide for adequate bonding of the single component hybridized polymer material. Make the width of the removal 2 inches wider than the line to be applied.
- 5 When removing existing markings from the pavement surface, provide a positive means to control dust and accumulation of debris resulting from the removal operation. Capture the removed material utilizing a separate vacuum equipped vehicle or other approved system to prevent its dispersal. Properly dispose of this captured material. Do not allow visible marking material debris to remain on the pavement shoulders. Clean up, remove, and dispose of excess or waste materials away from the project site.
- 6 Ensure that the removal of dust and debris collection operations does not damage the existing pavement surfaces (concrete or asphalt) or damage the pavement joint materials. Repair any significant damage occurring from the removal operations to the satisfaction of the RCE no expense to the Department.

Immediately before the application of the new marking material, clean all surfaces to be marked with a jet of compressed air. At the time of marking application, the pavement surface must be free of dust, dirt, oil, grease and any remaining loose or flaking marking material.

### **633.4.2 Application of Markings**

#### **1 633.4.2.1 General**

- 2 Place all longitudinal markings with a truck-mounted applicator except where approved by the RCE. Such an exception may occur where the length of a particular marking is too short or the curvature too great to permit efficient use of a truck-mounted applicator. Such markings, as well as transverse markings, may be applied with a portable unit.
- 3 Make certain markings are sharp, well defined, uniformly retroreflective (except black markings), and are free of uneven edges, overspray, or other readily visible defects, which in the opinion of the RCE detract from the appearance or function of the pavement markings. Non-retroreflective lines are unacceptable with the exception of black pavement markings. Remove and reapply pavement markings that are improperly applied or are not of uniform retroreflectivity at no additional expense to the Department, including furnishing of materials. Remove and reapply improperly located markings in the correct location at no additional expense to the Department, including furnishing of materials.



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4 Make certain that the markings are straight or uniform in curvature and conform uniformly to tangents, curves, and transitions. Apply symbols of dimensions shown in the *SCDOT Standard Drawings*. Ensure that line markings are of the dimensions shown on the *Pavement Marking Plans* or as directed by the RCE. Provide sufficient control points to serve as guides for the application of markings.

5 Ensure that the finished line markings are free from waviness and that lateral deviations do not exceed 2 inches in 100 feet. Remove and correct line markings with deviation greater than 2 inches in 100 feet at no additional expense to the Department. Remove and correct any symbol markings not meeting the dimensional requirements of the *Pavement Marking Plans* and the *SCDOT Standard Drawings* at no additional expense to the Department.

6 Protect the markings until dry by placing guarding or warning devices as necessary. In the event any vehicle should cross the wet marking, re-apply the marking and remove any tracking lines made by the moving vehicle to the satisfaction of the RCE.

In the event that the contract includes sections of roadway where raised pavement markers are installed on the surface, do not apply marking material onto the reflective surface of the raised markers. If marking material is applied to the reflective marker surface, the RCE will suspend the work and all marking material must be removed from the reflector unit or the damaged marker removed and replaced.

1 **633.4.2.2 Rate of Application**

2 Provide an adequate number of personnel experienced in the handling and application of this type of material to ensure that the work is done properly.

Apply the single component hybridized polymer marking materials at the rate specified in the following table to produce a uniform 25 mil wet film thickness, calculated without drop-on beads.

3

Gallons of Material per Mile of Line		
Line Width (inches)	Material for Solid Line (gallons)	Material for Broken Line (gallons)
4	27.5	6.875
6	41.25	10.375
8	55	---
12	82.5	---
24	165	---

4 Ensure that application rates for solid lines in gore areas are not be less than one gallon per 64 square foot of marking surface (25 mil thickness). The following table gives the application rate on a linear foot basis for shorter lengths of markings (gore markings and stop bars.)

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5

<b>Linear Foot of Line per Gallon of Material</b>	
<b>Line Width (inches)</b>	<b>Solid Line Length (feet)</b>
8	96
12	64
24	32

Heat the single component hybridized polymer to the manufacturer's recommended temperature before application to the pavement surface.

### **633.4.3 Glass Beads**

1 **633.4.3.1 Application of Glass Beads**

2 Apply two sizes of glass beads by the double drop method. This method requires that the large and small glass spheres be injected into or dropped onto the liquid single component hybridized polymer marking immediately after the material is applied to the pavement surface while the pavement marking material is still wet to ensure that the beads are held by and mechanically embedded in the surface of the single component hybridized polymer material. Ensure that the beads are uniformly distributed over the entire surface of the marking material in accordance with **Subsection 633.4.3.2**.

Apply the large beads first and immediately followed by the application of the small beads. Ensure that the beads adhere to the cured single component hybridized polymer or cease all marking operations until corrections are made.

1 **633.4.3.2 Double Drop Method**

2 Use small glass beads meeting the gradation for Type 1 required in **Subsection 633.2.2.3**.

3 Use large glass beads meeting the gradation for Type 4 required in **Subsection 633.2.2.3** and are a minimum of 80% true spheres.

4 Apply large beads uniformly to the surface of the single component hybridized polymer material so that they are embedded at 60% of their diameter at a rate of 12 lbs per gallon of material. Immediately follow the application of the large beads with application of the smaller spheres at a rate of 12 lbs per gallon of material.

5 Make certain that the beads are properly imbedded and adhered to the cured single component hybridized polymer line; if not, cease all marking operations until corrections are made.

Make certain that the marking is uniformly retroreflectorized upon cooling.

1 **633.4.4 Weather, Seasonal, and other Limitations**

2 Place single component hybridized polymer pavement markings only when the pavement is dry as determined by visual inspection or other approved method, the pavement temperature is a 45°F or greater, and the air temperature is 40°F or greater. No work is allowed when any moisture is visible on the pavement surface or pavement is wet.

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3 Provide each work crew with a hand-held infrared non-contact thermometer with a temperature range of 0°F to 1000°F to verify the minimum surface temperature and a pocket thermometer capable of accurately measuring air temperature. Measure air temperature away from heat generating equipment.

4 Application of markings may be disallowed on any day when, in the opinion of the RCE, moisture or temperature conditions are not satisfactory for obtaining quality pavement markings.

5 Do not apply single component hybridized polymer pavement markings between December 15 and March 15, inclusive.

Ensure that new asphalt concrete surfaces are in place a minimum of 2 weeks before marking application. Remove the curing compound on new Portland cement concrete surfaces before application.

### 1 **633.4.5 Inspection and Acceptance**

2 All single component hybridized polymer markings will be inspected for proper line thickness and width, proper adhesion, and proper cycle length. The markings will also be observed during both daytime and nighttime conditions to determine whether all the requirements of these specifications have been met. Remove and replace markings that fail to have satisfactory appearance in either daytime or nighttime conditions at no additional expense to the Department.

3 The final acceptance of the single component hybridized polymer pavement markings will be delayed for a period of 180 days after the last date of marking on the project to permit observation of performance.

4 Traffic must be operating on the facility during the entire 180-day observation period unless otherwise directed.

5 Replace markings that, in the opinion of the RCE, have not performed satisfactorily during this 180-day period due to defective materials and/or workmanship.

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Ensure that the pavement marking material shows no signs of failure due to blistering, excessive cracking, chipping, bleeding, staining, discoloration, oil content of the pavement materials, smearing or spreading under heat, deterioration due to contact with grease deposits, oil, or gasoline drippings, spilling, poor adhesion to the pavement materials, loss of retroreflectivity, and normal wear.

### **633.5 Retro-Reflectivity Requirements**

Measure marking retro-reflectivity using a Delta Light and Optics LTL-2000 or LTL-X hand held retroreflectometer.

Ensure that the markings achieve the initial minimum retroreflectance values shown in the following table. Make certain that these values are obtained within 30 days of marking placement. as measured with a LTL 2000 or LTL-X Retroreflectometer. Mark certain that the finished markings are uniformly retro-reflective as determined by visual inspection.

	Retro-reflectivity (mcd/lux/m <sup>2</sup> )	
	<b>White</b>	<b>Yellow</b>
Double Drop	375	250

Ensure that the markings maintain the minimum retroreflectance values shown in the following table for a period of 180 days. Take measurements within 30 days of the end of the observation period.

	Retro-reflectivity (mcd/lux/m <sup>2</sup> )	
	<b>White</b>	<b>Yellow</b>
Double Drop	325	200

1 **633.6 Measurement**

2 The quantities for single component hybridized polymer pavement markings for lines are measured by the linear foot (LF) along the center of the pavement marking lines for each width and color of single component hybridized polymer pavement marking in-place, complete and accepted. The measurement is the length of the single component hybridized polymer pavement marking only and excludes spaces between broken lines.

3 The quantities for single component hybridized polymer pavement marking symbols (arrows, word, and railroad crossing symbol) are measured by each (EA) symbol in-place, complete and accepted. A railroad-crossing symbol consists of "X RR".

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4 Traffic control utilized during the performance of single component hybridized polymer pavement marking work is not measured under items covered by this section, but is included in the item Traffic Control in accordance with **Subsections 107.12** and **601.5**.

5 Unless included in other bid items in the Contract, the work required to remove existing pavement markings is considered incidental work for single component hybridized polymer pavement marking work and is not measured separately.

Unless included in other bid items in the Contract, the work required to determine the no passing zones for two-lane facilities and to provide the Department with the data used in establishing the zones is considered incidental to the work under this section and is not measured for payment.

### 1 **633.7 Payment**

2 Payment for the accepted quantity for each type of single component hybridized polymer pavement markings measured in accordance with **Subsection 633.5**, is determined with the contract unit bid price for the applicable item. Payment is full compensation for applying single component hybridized polymer pavement markings as specified or directed and includes preparing the pavement surface; removing unacceptable pavement markings; and all other materials, labor, equipment, supplies, and incidentals necessary to fulfill the requirements of the pay item in accordance with the Plans, the Specifications, and other terms of the Contract.

3 Removal of existing pavement markings is considered incidental to the other items of work and no separate payment is made for this work unless separate pay items are included in the Contract.

4 Unless otherwise included in the Contract, traffic control for application and/or removal of pavement markings is included in the pay item Traffic Control in accordance with **Subsections 107.12** and **601.6**.

5 Determination of the no passing zones for two-lane facilities and providing the Department with the data is considered incidental to the other various items of work, and no separate payment is made for this work.

6 Payment for each item includes all direct and indirect costs and expenses required to complete the work.

Pay items under this section include the following:

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<b>Item No.</b>	<b>Pay Item</b>	<b>Unit</b>
6332005	4" White Broken Lines - (Gaps Excluded) - Single Component Hybridized Polymer – 25 mils	LF
6332007	6" White Broken Lines - (Gaps Excluded) - Single Component Hybridized Polymer – 25 mils	LF
6332008	6" Black Broken Lines - (Gaps Excluded) - Single Component Hybridized Polymer – 25 mils	LF
6332010	4" White Solid Lines - (Pavement Edge Lines) - Single Component Hybridized Polymer – 25 mils	LF
6332012	6" White Solid Lines - (Pavement Edge Lines) - Single Component Hybridized Polymer – 25 mils	LF
6332015	8" White Solid Lines – (Crosswalk & Channelization) - Single Component Hybridized Polymer – 25 mils	LF
6332020	12" White Solid Lines (Gore Markings) Single Component Hybridized Polymer – 25 mils	LF
6332021	12 " White Solid Lines (Diagonal Lines) - Single Component Hybridized Polymer – 25 mils	LF
6332025	24" White Solid Lines (Stop Lines/Diagonal Lines) - Single Component Hybridized Polymer – 25 mils	LF
6332030	White Single Arrows (Left, Straight, Right) - Single Component Hybridized Polymer – 25 mils	EA
6332035	White Word Message "Only" - Single Component Hybridized Polymer – 25 mils	EA
6332040	White Combination Arrow (Straight & Right or Straight & Left) - Single Component Hybridized Polymer – 25 mils	EA
6332043	White Lane Drop Arrow (Left or Right) - Single Component Hybridized Polymer – 25 mils	EA
6332045	Railroad Crossing Symbols - Single Component Hybridized Polymer – 25 mils	EA
6332105	4" Yellow Broken Lines (Gaps Excluded) Single Component Hybridized Polymer – 25 mils	LF
6332110	4" Yellow Solid Lines (Pavement Edge & No Passing Zone) - Single Component Hybridized Polymer – 25 mils	LF
6332112	6" Yellow Solid Lines (Pavement Edge & No Passing Zone) - Single Component Hybridized Polymer – 25 mils	LF
6332114	12" Yellow Solid Lines (Diagonal Line) - Single Component Hybridized Polymer – 25 mils	LF
6332115	24" Yellow Diagonal Line - Single Component Hybridized Polymer – 25 mils	LF