Georgia Department of Transportation
Office of Materials and Research

Standard Operating Procedure (SOP) 39

Pavement Markings Field Inspection

I. General

This Standard Operating Procedure presents an outline of the responsibilities of pavement marking Contractors intending to perform work under the auspices of this Department and the duties of Department personnel assigned to perform the field inspection.

It is a function of the Testing Bureau of the Office of Materials and Research to randomly inspect and sample pavement marking operations in order to determine if the Contractor is in conformance with governing Specifications. In order to facilitate the accomplishment of this task, routine field sampling and inspection on a random basis will be performed to insure the quality of the striping.

II. Contractor's Responsibilities—General

A. Material Control

Use traffic paint, polyurea and thermoplastic listed on Qualified Products List (QPL) 46, glass beads listed on Qualified Products List (QPL) 71, and performed plastic markings listed on Qualified Products List (QPL) 74.

Each container of paint, polyurea, thermoplastic and glass beads shall be legibly stenciled with the batch number and date of manufacture. Do not use bags of thermoplastic without a Certified Thermoplastic Technician (CTT) stamp. Each roll of performed plastic markings shall be legibly stenciled with the batch number and date of manufacture.

Each shipment of pavement marking materials shall be free of damage. Care should be exercised to ensure that palletized thermoplastic does not collect moisture due to weather and humidity.

B. Submittals

Ensure that the producers of the pavement marking materials furnish to the Department copies of certified test reports showing results of all tests specified in the appropriate GDOT Specification.

C. Quality Control

1. General

If traffic stripe fails to meet Plan details or Specifications or deviates from stated dimensions, correct it at no additional cost to the Department. If removal of pavement markings is necessary, remove it according to Section 656 and replace it according to this Specification. No additional payment will be made for removal and replacement of unsatisfactory striping.

2. Initial Retroreflectivity

A. Longitudinal Lines

Within 30 days of installation, ensure the in-place markings when tested according to ASTM E 1710 and/or ASTM E 2177 meet the minimum reflectance values stated in the appropriate GDOT Specification (Section 652 – Standard and Wet Weather Traffic Paint; Section 653 – Standard and Wet

Weather Thermoplastic Traffic Stripe; Section 657- Performed Plastic Pavement Markings; and Section 658 - Standard and Wet Weather Polyurea Traffic Stripe) For each center line, edge line, and skip line, measure retroreflectivity 9 times for each mile; 3 times within the first 500ft, 3 times in the middle, and 3 times within the last 500ft. For projects less than one mile in length, measure retroreflectivity 9 times as above.

Use form OMR CVP-66 to record measurements. In the event a failing reflectance value is obtained for the **One Mile Section Average**, perform corrective work on this segment of roadway at no additional cost to the Department. Retest one mile corrective work segments according to this Specification. Any retest due to failures will be performed at no additional cost to the Department. Furnish all test reports to the Department

B. Messages, Symbols, and Transverse Lines

At the time of installation, ensure the in-place markings when tested according to ASTM E 1710 meet the minimum reflectance values stated in the appropriate GDOT Specification (Section 652 – Standard and Wet Weather Traffic Paint; Section 653 – Standard and Wet Weather Thermoplastic Traffic Stripe; Section 657- Performed Plastic Pavement Markings; and Section 658 - Standard and Wet Weather Polyurea Traffic Stripe).

Perform at a minimum, one retroreflectivity measurement at one message, one symbol and one transverse line per intersection. Take one measurement per mile for locations other than intersections (i.e. school messages, railroad messages, bike symbols etc.).

Use form OMR CVP-66 to record measurements. In the event a failing reflectance value is obtained, perform corrective work on this area of roadway at no additional cost to the Department. Retest corrective work area according to this Specification. Any retest due to failures will be performed at no additional cost to the Department. Furnish all test reports to the Department.

3. Six Month Retroreflectivity (Longitudinal Lines)

Maintain the minimum reflectance values for 180 days after installation.

Retest the in-place markings after 155 days and before 185 days after installation to ensure these minimum retroreflectance values are maintained. For each center line, edge line, and skip line, measure retroreflectivity 9 times for each mile; 3 times within the first 500ft, 3 times in the middle, and 3 times within the last 500ft. For projects less than one mile in length, measure retroreflectivity 9 times as above.

Use form OMR CVP-66 to record measurements. In the event a failing reflectance value is obtained for the **One Mile Section Average**, perform corrective work on this segment of roadway at no additional cost to the Department. Retest one mile corrective work segments according to this Specification. Any retest due to failures will be performed at no additional cost to the Department. Furnish all test reports to the Department.

NOTE: The Contractor is responsible for retroreflectivity testing. Furnish initial test results to the Engineer within 30 days of application. Furnish 6 month test results to the Engineer within 180 days of application or prior to final acceptance, whichever comes first.

4. Thickness

Check the thicknesses of thermoplastic traffic stripe on all skip lines, edge lines and center lines with an approved traffic marking thickness gage consisting of 3 dials.

Check the thicknesses of paint and polyurea traffic stripe on all skip lines, edge lines and center lines by placing durable tape, film, or metal plate of known and uniform thickness on an area to be striped. After the striper has passed over, remove the sample and measure the thickness with calipers or a micrometer.

For each center line, edge line, and skip line, measure thickness above the pavement 3 times for each mile; once within the first 500ft, once in the middle, and once within the last 500ft. For projects less than one mile in length, measure the thickness above the pavement 3 times. Submit results to Engineer.

Use form OMR CVP-66 to record measurements. In the event a failing thickness value is obtained for the **One Mile Section Average**, perform corrective work on this segment of roadway at no additional cost to

the Department. Retest one mile corrective work segments according to this Specification. Any retest due to failures will be performed at no additional cost to the Department. Furnish all test reports to the Department.

5. Equipment

Test for retroreflectivity using a 30m geometry retroreflectometer as specified in ASTM E 1710. Check calibration before and after each day's use.

Test thermoplastic thickness with an approved traffic marking thickness gage consisting of 3 dials.

III. Office of Materials and Research Responsibilities

The Office of Materials and Research will randomly perform tests, visually inspect, and sample thermoplastic striping. Random inspections and sampling shall also be conducted on thermoplastic shipped to the Department or its registered contractor. The Office of Materials and Research will maintain copies of all test reports for any samples randomly selected. The Department will randomly verify the Quality Acceptance at a rate of one in every ten projects.

A. Thickness

Department personnel will randomly verify thickness at a rate of one in every ten projects. If the thickness measurement does not meet the requirements of the appropriate specification, the Contractor must make corrective actions.

B. Retroreflectivity

Department personnel will randomly verify both initial and six month retroreflectivity at a rate of one in every ten projects. If the initial retroreflectivity does not meet the requirements of the appropriate specification, the Contractor must make corrective action within 180 days. If the six month retroreflectivity does not meet specification, the Department will require prompt corrective action.

IV. Reporting

Submit independent lab test reports to the Office of Materials and Research at least one week before beginning striping operations. The Office of Materials and Research will review each lab test report and each completed OMR CVP-66 form. If the information furnished is complete and correct, the reports will be distributed as part of the documentation for material approval.

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Georgene M. Geary, P.E.
State Materials and Research Engineer

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Thomas Howell, P.E.
Director of Construction

GDOT THERMOPLASTIC FIELD INSPECTION **OMR-CVP-66**

COUNTY ______________________________ PROJECT NO. ______________________________________ OMR CVP 66

TRAFFIC MARKINGS WORKSHEET 30 DAY READINGS ☐ 180 DAY READINGS ☐

DATE	MATL	LOCATION	(DRY) Retro Values			Avg	One Mile Section Avg	Thickness (Mils = 1/1000 inch)			One Mile Section Avg	(WET) Retro Values			Avg	One Mile Section Avg
6-2-11	1Y	354+00 – L1	300	300	300	300						250	250	250	250	
		379+00 –L1	150	150	150	150						250	250	250	250	
		359+250	200	200	200	200	217	65	72	61	66	250	250	250	250	250

Retroreflectivity readings in mcd/lx-m^2 in accordance with ASTM E1710 (Dry) and ASTM E2177 (Wet) *W = White* *Y = Yellow*

CONTRACTOR ______________________________ GDOT REPRESENTATIVE ____________________________________

DRY RETROREFLECTIVITY READINGS IN ACCORDANCE WITH ASTM E 1710

Required values in $mcd/lx/m^2$ X days after initial installation.	White 30 Days	White 180 Days	Yellow 30 Days	Yellow 180 Days
1 Thermoplastic	400	400	300	300
2 Polyurea	600	600	400	400
3 Paint/Highbuild Paint	300	300	250	250
4 Preformed Plastic Tape	600	600	400	400
Intersection Markings & Symbols				
1a Thermoplastic	275	275		
2b Polyurea	275	275		
3c Paint/Highbuild Paint	275	275		
4d Preformed Plastic Tape	600	600		

WET RETROREFLECTIVITY READINGS IN ACCORDANCE WITH ASTM E2177

Required values in $mcd/lx/m^2$ X days after initial installation.	White 30 Days	White 180 Days	Yellow 30 Days	Yellow 180 Days
1 Thermoplastic	150	150	125	125
2 Polyurea	250	250	200	200
3 Paint/Highbuild Paint	150	150	100	100
4 Preformed Plastic Tape	250	250	200	200

Mil Thickness Requirements (1/1000 inch) ***Measurements taken from the surface***

Striping Materials	Interstate OGFC	Interstate Concrete	Asphalt	Edge Line	Center Line	Intersection Markings, Symbols and Gore Areas
1 Thermoplastic				60	90	120
2 Polyurea	25	20	20	20	20	
3 Paint/Highbuild Paint (wet thickness)			25	25	25	

Thermoplastic Only – Record 3 gauge readings using an apparatus employing 3 dial gauge indicators accurate to within 1/1000 of an inch.
Obtain polyurea **"dry"** thickness at the time of installation.
Obtain Highbuild Paint **"wet"** at the time of installation according to ASTM D 4114.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
OFFICE OF MATERIALS AND RESEARCH

THERMOPLASTIC SHIPPING REPORT

Statewide Contract #_____ Contractor Lot #_____

Manufactured By: _____ Location _____

Contractor _____ Date Shipped _____

Type						
Color						
Batch Number						
Quantity						
Date Manufactured						
CTT #						

I certify the material covered by this report was manufactured to comply with the Department of Transportation, State of Georgia Standard Specifications Section 653. I further certify that the material herein has been subjected to the required testing and inspection as evidenced by the above noted Certified Thermoplastic Technician (CTT) number stamped on all thermoplastic shipped. A copy of actual certification test data is attached and remains on file in our office.

_____
Inspector Signature

Subscribed and sworn to before me, this _____

day of _____, 20_____

_____
Notary Public