

**1958 PERFORMANCE TESTS
ON WHITE AND YELLOW TRAFFIC PAINTS**

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**Research Laboratory Division
Office of Testing and Research
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Progress Report 1**

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**Michigan State Highway Department
John C. Mackie, Commissioner
Lansing, December 1958**

1958 PERFORMANCE TESTS
ON WHITE AND YELLOW TRAFFIC PAINTS

Each of twelve producers submitted one white and one yellow traffic paint for the 1958 performance tests. A yellow experimental paint also was included, to continue the Research Laboratory Division's evaluation of alkyd resins as traffic paint binders. The sources of the test paints were:

1. Acme Quality Paints Inc., Detroit
2. Baltimore Paint and Color Works, Baltimore
3. Berry Brothers Co., Detroit
4. Boydell Brothers Co., Detroit
5. Cook Paint and Varnish Co., Detroit
6. Franklin Paint Co., Franklin, Mass.
7. Glidden Co., Cleveland
8. Jaegle Paint and Varnish Co., Philadelphia
9. Patterson-Sargent Co., Detroit
10. Prismo Safety Corp., Huntingdon, Pa.
11. Silver Lead Paint Co., Lansing
12. Truscon Laboratories, Detroit
13. MSHD No. 14A Yellow Experimental Traffic Paint.

Five paints from these sources were not approved for evaluation in the field tests because of failure to meet certain "Specific Requirements" of the Department's specifications. These paints and their deficiencies were as follows:

1. Cook Paint and Varnish Co. white paint: excessive viscosity.
2. Cook Paint and Varnish Co. yellow paint: failed to match color standard due to muddiness and low reflectivity.

3. Patterson-Sargent Co. white paint: excessive bleeding on tar substrate.
4. Patterson-Sargent Co. yellow paint: excessive bleeding on tar substrate, and borderline color match.
5. Jaegle Paint and Varnish Co. white paint: excessive bleeding on tar substrate, and excessive viscosity.

FIELD TESTS

The remainder of the paints submitted for the 1958 performance tests were applied August 13-19, 1958, as transverse stripes in four test areas, including two concrete and two bituminous roadways.

Two of the four 1957 test areas are being used again in the 1958 tests. Test Area 1 (concrete) and 2 (bituminous) have been transferred from US-27 south of St. Johns to M-78 east of East Lansing, because of greater convenience for rating teams scheduled to evaluate both the stripes and some test signs exposed in the latter area. The locations of the four 1958 performance areas are as follows:

1. M-78 three miles east of East Lansing, concrete, south roadway;
2. M-78 three miles east of East Lansing, bituminous, north roadway;
3. US-127 between Miller Rd and Pennsylvania Ave extension, concrete, east roadway;
4. US-127 between Miller Rd and Pennsylvania Ave extension, bituminous, east roadway.

Application of paints in the 1958 tests was governed by MSHD specifications for white and yellow traffic paints, as revised May 29, 1957,

and amended October 16, 1957, by action of the traffic paint committee. Accordingly, reflectorizing beads were added to the stripes by the "drop-in" method and all glass beads conformed to Department specifications for Type III beads.

Prismo Safety Corporation was the only supplier of test paints exercising the option of furnishing the bead complement with its paints. These beads did conform to Departmental specifications for Type III beads; they were not moisture-proofed as were those Prismo furnished in previous years.

All test paints were applied in the same thickness at the rate of 16.5 gal per mi of 4-in. stripe, since no other stripe thickness recommendations were received from any of the producers. For the same reason glass beads were applied to all test stripes in the ratio of 6 lb per gal of paint.

Three stripes of each field test paint were applied in each performance area. The stripes were identified only by numbers, which increased consecutively in order of application. The order of application of test paints in the four areas was again rotated, as shown in Figure 1 and Table 1, to compensate for any inequalities arising from differences in the time or order of application. All paints were applied as 4-in. wide transverse stripes across two highway lanes, traffic and passing.

In depositing the 1958 transverse stripes, the spray machine setting was the same (15-mil thickness) for all performance paints. Field checks for film thickness, accomplished by weighing specified lengths of the fresh striping, were made at least once for each paint during all applications. Weight deviations from the amount calculated for a 15-mil film were within the 5 percent allowed in these tests, and are tabulated in Table 1.

Detailed observations again were made by Laboratory Division personnel during application of field test paints, including air temperature and relative humidity, atomization pressure and stripe width. These values are listed in Table 1.

No difficulty was experienced in depositing any of the paints as transverse stripes in the test areas, two of which are shown in Figure 2.

Forty-five-gal amounts of each paint submitted for the 1958 tests were applied as longitudinal stripes by the Grand Rapids striping crew in order to evaluate handling and application characteristics of the paints in highway striping equipment. The crew commented that they encountered some trouble in applying white paints from the Baltimore Co. (poor bead embedment) and the Jaegle Co. (high viscosity), and with yellow paints from the Boydell and the Jaegle Co. (tendency to splatter due to viscosity near the lower limit).

Initial evaluations of the performance stripes have been made and will be tabulated with subsequent evaluations in a final report.

TABLE 1

SUMMARY OF APPLICATION DATA

	Code No.	Stripe No.	Application Time	Air Temp F	Relative Humidity %	Weight Diff. %	Weather Comments	
T E S T A R E A ① M-78, 3 MILES EAST OF EAST LANSING, CONCRETE 24 FEET, SOUTH ROADWAY, CONSTRUCTED 1957	128	1-3	10:15	61	58	+0.4	Sunny, clear with light breeze	WHITE
	130	4-6				+3.6		
	132	7-9				+3.5		
	136	10-12				+2.0		
	138	13-15						
	116	16-18						
	118	19-21				+4.4		
	122	22-24				+2.4		
	124	25-27						
	Exp	28-30	+1.8					
	Exp	31-33	11:35	64	51	-2.9		
	Exp	1-3	12:35	66	48	+4.4	Sunny, clear with light breeze.	YELLOW
	Exp	4-6				+3.2		
	129	7-9						
	131	10-12				+5.0		
	133	13-15				+2.4		
	135	16-18				+0.4		
	137	19-21				+2.9		
	139	22-24				+2.5		
140	25-27	-1.6						
117	28-30	0.0						
119	31-33							
123	34-36							
125	37-39	2:00	70	40	-0.3			
T E S T A R E A ② M-78, 3 MILES EAST OF EAST LANSING, BITUMINOUS 24 FEET, NORTH ROADWAY, CONSTRUCTED 1957	Exp	1-3	11:30	75	37	+5.6	Sunny, clear with a breeze.	WHITE
	Exp	4-6				+0.5		
	122	7-9				+1.0		
	124	10-12						
	128	13-15						
	130	16-18				+5.7		
	132	19-21						
	136	22-24						
	138	25-27				-0.5		
	116	28-30	-2.9					
	118	31-33	12:40	78	45	0.0		
	135	1-3	10:00	70	51	+2.9	Sunny, clear with a breeze.	YELLOW
	137	4-6				+4.0		
	139	7-9						
	140	10-12						
	117	13-15				+3.9		
	119	16-18				+2.0		
	123	19-21				-4.3		
	125	22-24				+2.7		
129	25-27	-3.0						
131	28-30	-1.7						
133	31-33							
Exp	34-36							
Exp	37-39	11:30	75	37	+4.7			
					+3.5			

TABLE 1 (Continued)

SUMMARY OF APPLICATION DATA

		Code No.	Stripe No.	Application Time	Air Temp F	Relative Humidity %	Atom. Pressure psig	Weather Comments				
TEST AREA ③ US-127, SOUTH OF MILLER ROAD, CONCRETE 22 FEET, EAST ROADWAY, CONSTRUCTED 1948	8-13-58	116	1-3	9:45	72	61	30	Sunny	WHITE			
		118	4-6				35					
		122	7-9				20			overcast		
		124	10-12				25			with		
		128	13-15				35			little		
		130	16-18				30			breeze.		
		132	19-21				35					
		136	22-24				35					
		138	25-27				30					
	Exp	28-30	35									
	Exp	31-33	11:00	75	58	35						
	8-13-58	Exp	1-3	11:30	75	58	35	Sunny	YELLOW			
		Exp	4-6				30					
		140	7-9				30			clear		
		139	10-12				30			with		
		137	13-15				30			light		
		135	16-18				20			breeze.		
		133	19-21				25					
		131	22-24				30					
129		25-27	35									
125		28-30	20									
123		31-33	20									
119		34-36	20									
117		37-39	2:30				80			57	25	
TEST AREA ④ US-127, SOUTH OF MILLER ROAD, BITUMINOUS 22 FEET, EAST ROADWAY, CONSTRUCTED 1956		8-14-58	Exp				1-3			12:00	83	52
	Exp		4-6	35								
	138		7-9	25	overcast							
	136		10-12	35	with							
	132		13-15	35	a							
	130		16-18	35	breeze							
	128		19-21	40								
	124		22-24	25								
	122		25-27	20								
	118	28-30	35									
	116	31-33	2:30	89	47	35						
	8-14-58	117	1-3	9:30	74	82	20	Sunny	YELLOW			
		119	4-6				20					
		123	7-9				20			overcast		
125		10-12	25				with					
129		13-15	35				a					
131		16-18	20				breeze.					
133		19-21	25									
135		22-24	30									
137		25-27	30									
139		28-30	30									
140	31-33	30										
Exp	34-36	11:00	80	57	30							
Exp	37-39				35							

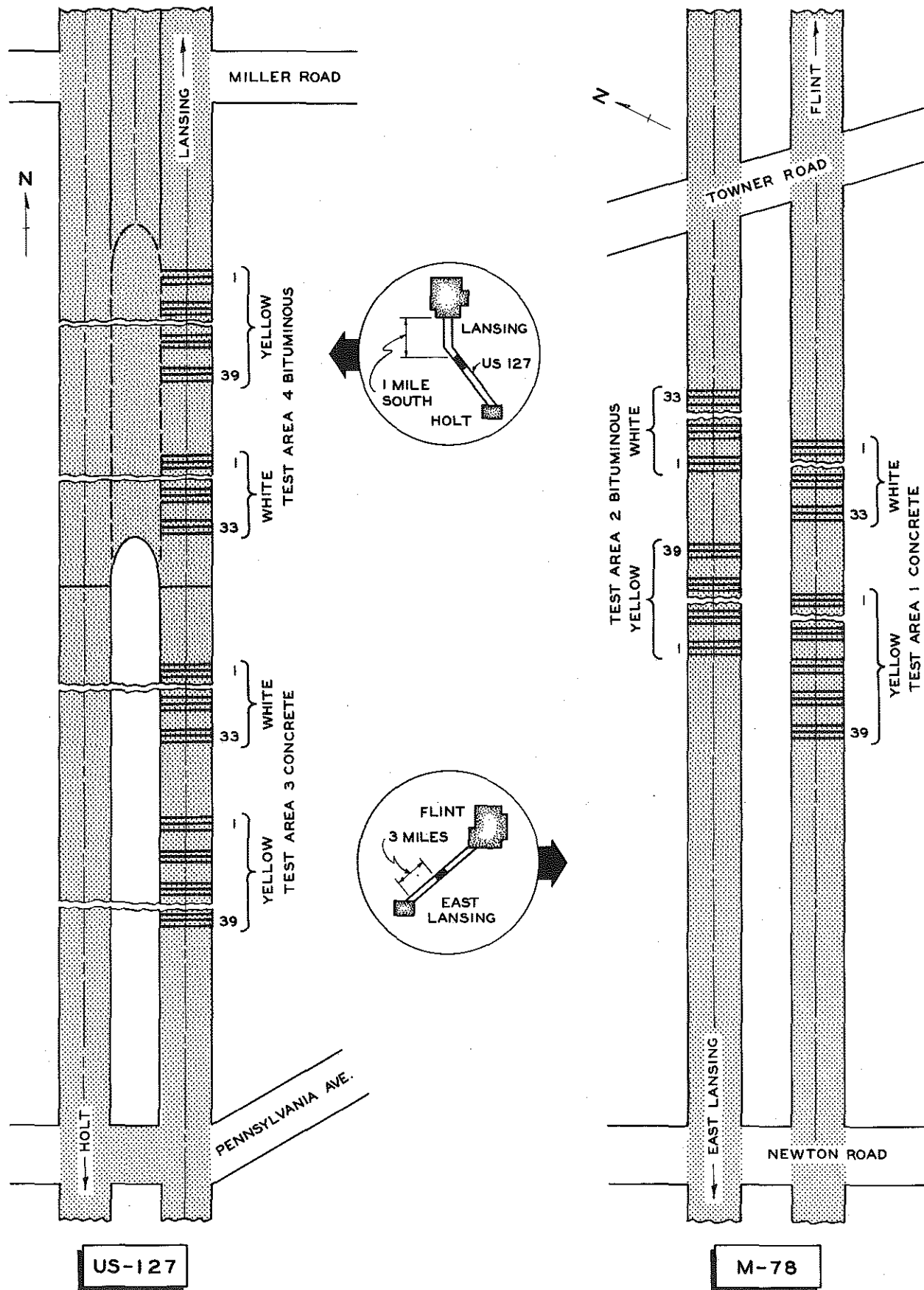


Figure 1. Locations of 1958 Performance Paints Research Project 47 G-36 (11)

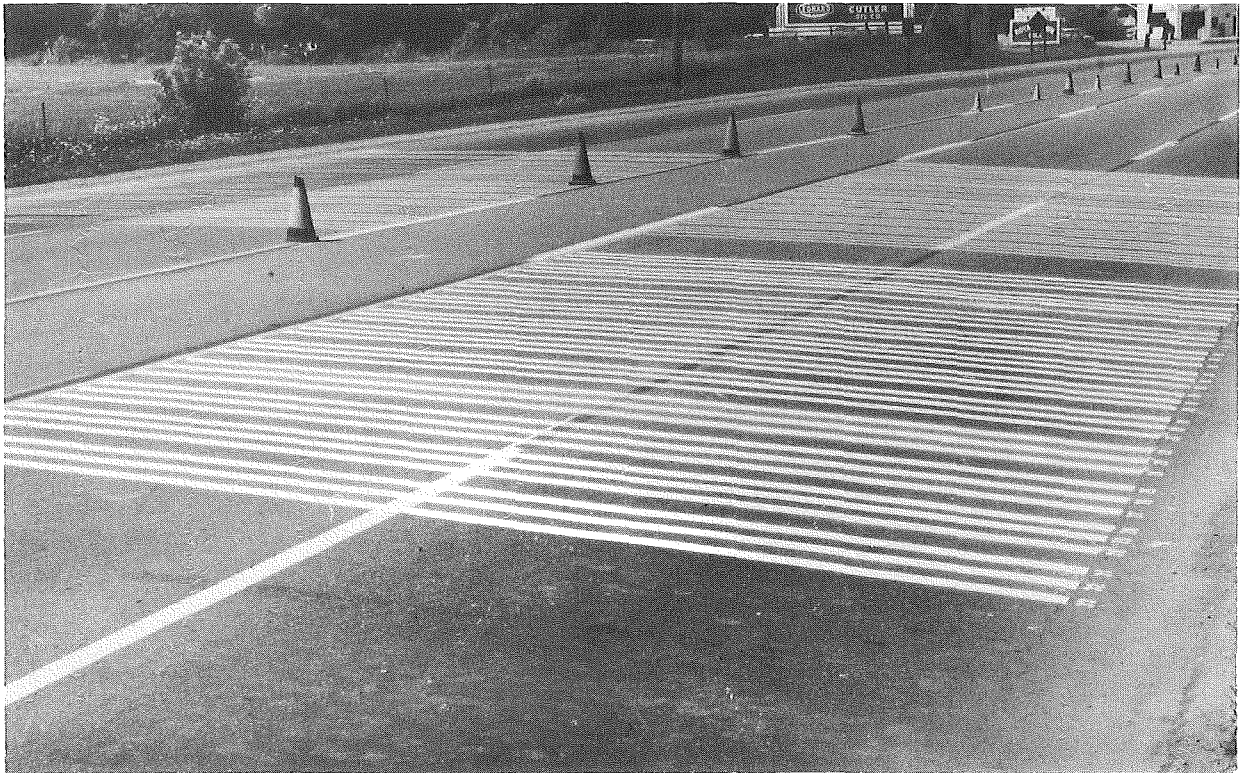


Figure 2. 1958 performance areas. Area 1 (Concrete) in top photograph with yellow stripes in foreground and white stripes in background with test signs on road shoulder. Area 4 (Bituminous) in lower photograph opposite 1957 transverse stripes.