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KIM REYNOLDS, GOVERNOR
CHRIS COURNOYER, LT. GOVERNOR
SCOTT MARLER, IOWA DOT DIRECTOR
MELISSA GILLETT, IOWA DOT COO

IOWA DEPARTMENT OF TRANSPORTATION
MAINTENANCE BUREAU
800 Lincoln Way
Ames, IA 50010
(515)-233-7818
www.iowadot.gov

January 29, 2025

Dear Iowa ATSSA Chapter Members:

The following pages contain four pavement marking specification revisions proposed for adoption in the October 2025 General Specification update. Please review the proposed changes and bring your questions to the upcoming meeting on February 4th. I will present these proposed updates at the meeting and there will be a time for questions and comments.

Additionally, the comment period will be open through February 28, 2025. Please address any questions, comments, or concerns to me by email at Benjamin.hucker@iowadot.us. If you have a concern with the language as it is presented, please be sure to include suggested changes or new language in your comments to ensure your concern is fully understood and addressed.

Thank you,

Ben

Benjamin A. Hucker, P.E.; PTOE
Assistant State Maintenance Engineer

Form 510130 (08-24)

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SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove / Brian Worrel / Ben Hucker	**Bureau/Office:** Construction & Materials and Maintenance	**Item** FILLED IN BY SPECIFICATIONS
Submittal Date: 4/10/2025	**Proposed Effective Date:** 10/21/2025	
Article No.: 2527.02,D.2. **Title: Pavement Marking Materials**	**Other:**	

Specification Committee Action:			
Deferred:	**Not Approved:**	**Approved Date:**	**Effective Date:**
Specification Committee Approved Text:			
Comments:			
Specification Section Recommended Text:			
Comments:			

Member's Requested Change: (Do not use 'Track Changes', or 'Mark-Up'. Use ~~Strikeout~~ and Highlight.)

Revise Tables 2527.002-1 and 2527.02-2 and add subsection 3) to 2527.02.D.2.b. as shown below:

Table 2527.02-1: Waterborne Paint

Line Width	Wet-Film Thickness	Paint	Spheres
4"	14 mils	343.7 ft. of solid line per gallon of paint.	9.0 lb./gal.
6"	18 mils	178.2 ft. of solid line per gallon of paint.	11.0 lb./gal.
8"	18 mils	134 ft. of solid line per gallon of paint.	11.0 lb./gal.
10"	18 mils	107 ft. of solid line per gallon of paint.	11.0 lb./gal.

Table 2527.02-2: Solvent-based Paint

Line Width	Wet-Film Thickness	Paint	Spheres
4"	16 mils	300.8 ft. of solid line per gallon of paint.	9.0 lb./gal.
6"	18 mils	178.2 ft. of solid line per gallon of paint.	11.0 lb./gal.
8"	18 mils	134 ft. of solid line per gallon of paint.	11.0 lb./gal.
10"	18 mils	107 ft. of solid line per gallon of paint.	11.0 lb./gal.

3) For all lines 6 inches or more in width, ensure the application of paint and glass beads will allow for at least 80% of the beads to achieve a minimum of 55% embedment in the dry paint and meet the following minimum retroreflectivity requirements:

Minimum Coefficient of Retroreflected Luminance mcd/m²/lx	
White line, symbols, and legends	300
Yellow line	200

The contractor is responsible for placement of a quality product that meets or exceeds these specifications. Prior to commencing work, demonstrate to the Engineer that the equipment and methods to be used on the project will achieve or exceed these requirements. When retroreflectivity readings are performed, use the procedure in Materials I.M. 386.

Revise reflectivity unit of measure in 2527.02.D.2.c. and 2527.02.D.2.d. as shown below:

Minimum Coefficient of Retroreflected Luminance

	~~mcd / sq. ft. / ft.-cdl.~~ mcd/m^2/lx
White line, symbols, and legends	300
Yellow line	200

Add in reference to Materials I.M 386 to 2527.02.D.2.d.4) as shown below:

Final acceptance will be based on compliance with these specifications. Ensure markings meet the following retroreflectivity requirements. Use the procedure in Materials I.M. 386 to determine retroreflectivity. Provide average retroreflective values per mile to the Engineer. The Engineer may help define locations for measurement of retroreflectivity. In no case should there be less than five retroreflectivity checks per mile. Number of checks will be averaged against values obtained to determine compliance to minimum retroreflectivity values.

Reason for Revision:

Tables 2527.002-1 and 2527.02-2 are being revised to add additional line widths which are now common with the wider longitudinal lines being placed.

Subsection 3) to 2527.02.D.2.b. is being added as a means of ensuring the quality of our waterborne and solvent-based pavement markings. Current experience shows that many of our new lines painted do not properly retain the beads and thus lose reflectivity prematurely, which is a safety issue for the traveling public. By adding embedment requirements for glass beads and minimum retroreflectivity requirements, our inspectors will have a qualitative way to measure the quality of the pavement markings fairly and accurately.

The units of reflectivity in the sections 2527.02.D.2.c. and 2527.02.D.2.d. are being revised to align with current industry practice and the units of measure available on modern retroreflectometers.

The reference to Materials I.M 386 is being added to section 2527.02.D.2.d.4) to provide a reference to the proper retroreflectometer test method as stated in adjacent subsections. When reviewing the specification for the other associated revisions, it was noted this reference was omitted when this section was originally added.

New Bid Item Required (X one)	**Yes**	**No** X
Bid Item Modification Required (X one)	**Yes**	**No** X
Bid Item Obsoletion Required (X one)	**Yes**	**No** X

Comments:

These changes bring our specification into greater alignment with the pavement markings industry as well as new MUTCD requirements which mandate minimum retroreflectivity levels for longitudinal pavement markings.

Regarding the new subsection 3) to 2527.02.D.2.b., if the paint and beads are applied at the rates shown in Tables 2527.002-1 and 2527.02-2, the bead embedment requirements should be met based on the following calculations:

*Wet Film Thickness (**18 mils**) x total solids of the paint (**0.76** per Sec. 4183.03.B.1.a.) = Dry Film Thickness (**13.68 mils**)*

Table 4184.02-1: Gradation Requirements

(Standard Blend Glass Spheres/Beads)

Sieve Size	Amout Retained	Bead Size	55% of Bead Size
	%	*mils*	*mils*
16	0		
20	8-15	33.5	18.43
30	25-35	23.6	12.98
40	30-50	16.7	9.19
50	15-35	11.8	6.49
80	0-10		
pan	0-2		

County or City Comments:

This specification revision was sent to the Local Systems Bureau on _____, 2025. They were asked to forward to all interested parties and comments were invited to be sent in through February 28, 2025. ___ comments were received and were addressed within the language of this proposal.

Industry Comments:

This specification revision was presented to the Iowa ATSSA Chapter at their meeting on February 4, 2025. Comments were invited to be sent in through February 28, 2025. ___ comments were received and were addressed within the language of this proposal.

Form 510130 (08-24)

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SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove / Brian Worrel / Ben Hucker	**Bureau/Office:** Construction & Materials and Maintenance	**Item** FILLED IN BY SPECIFICATIONS
Submittal Date: 04/10/2025	**Proposed Effective Date:** 4/15/2025	
Article No.: 2527.03,C.6. **Title:** **Removal of Pavement Markings**	**Other:**	

Specification Committee Action:			
Deferred:	**Not Approved:**	**Approved Date:**	**Effective Date:**
Specification Committee Approved Text:			
Comments:			
Specification Section Recommended Text:			
Comments:			

Member's Requested Change: (Do not use '**Track Changes**', or '**Mark-Up**'. Use ~~**Strikeout**~~ and **Highlight**.)

Removal will not be required prior to being covered by a construction process unless specified in the contract documents. **Utilize high pressure water blasting for r**emoval of pavement markings ~~may be by~~ ~~vacuum blasting, vacuum dry grinding, wet grinding, shot blasting, or high-pressure water blasting~~. **Engineer approval is required for alternate pavement marking removal processes other than water blasting. Containment is required if o**pen abrasive blasting or dry grinding ~~without containment will not be~~ **is** allowed **by the engineer. No additional compensation will be allowed for contractor requested and engineer approved alternate pavement marking removal processes.**

Reason for Revision:

Pavement marking removal methods other than high-pressure water blasting often create permanent, noticeable scars on the pavement which can be distracting and misleading to drivers, especially in low sun angle times of day. This can cause confusion as to where drivers should be and has been a contributing factor in past work zone crashes.

New Bid Item Required (X one)	**Yes**	**No** X
Bid Item Modification Required (X one)	**Yes**	**No** X
Bid Item Obsoletion Required (X one)	**Yes**	**No** X

Comments:

Allowances for other methods were included to allow exceptions for irregular occurrences such as below-freezing temperatures or other applications where water blasting cannot be accomplished or should not be used.

County or City Comments:

This specification revision was sent to the Local Systems Bureau on October 15, 2024. Per Dillon Feldmann, he forwarded it to "an array of agencies and received very little feedback. It appeared everyone agreed with the change to the pavement removal specification."

Industry Comments:

Based on industry feedback, many DOT and local agency projects already specify this in plan sets that are issued, so this change will update our specification with current engineering and industry practice.

This specification revision was presented to the Iowa ATSSA Chapter at their virtual meeting on October 24, 2024. This item generated discussion and some contractors expressed general concerns as this will represent a change to their typical operations, but no suggestions were offered as to what could ease their concerns. An offer was extended to submit comments or suggested language changes by November 30, 2024, and none were received.

This specification revision was again presented to the Iowa ATSSA Chapter at their in-person meeting on February 4, 2025. Comments were invited to be sent in through February 28, 2025. ___ comments were received and were addressed within the language of this proposal.

Form 510130 (08-24)

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SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove / Brian Worrel / Ben Hucker	**Bureau/Office:** Construction & Materials and Maintenance	**Item** FILLED IN BY SPECIFICATIONS
Submittal Date: 4/10/2025	**Proposed Effective Date:** 10/21/2025	
Article No.: 2527.03,G. **Title: Pavement Marking Materials**	**Other:**	

Specification Committee Action:			
Deferred:	**Not Approved:**	**Approved Date:**	**Effective Date:**
Specification Committee Approved Text:			
Comments:			
Specification Section Recommended Text:			
Comments:			

Member's Requested Change: (Do not use 'Track Changes', or 'Mark-Up'. Use ~~Strikeout~~ and Highlight.)

Remove subsections 2527.03, G.1. and 2527.03, G.2. Replace with new subsection 2527.03, G. language as shown below:

Pavement marking will be evaluated by the engineer for acceptance following installation. The engineer will notify the contractor of any pavement markings that fail to meet acceptance. Reasons for failure could include, but are not limited to, failed retroreflectivity readings, incorrect color, incorrect location, poor alignment, poor adherence to the pavement surface, insufficient thickness, width or length and insufficient bead embedment. Replace ~~Repair~~, at no additional cost to the Contracting Authority, all pavement markings which~~, after application and curing,~~ the Engineer determines to be defective and not in conformance with ~~these~~ this specification~~s~~. Remove the defective markings completely and clean to the underlying pavement surface according to the requirements of Article 2527.03, C. Remove the defective area plus all adjacent marking material extending 1 foot in any direction. After surface preparation work is complete, finish the repair by reapplying new marking material over the cleaned pavement surface according to the requirements of ~~these~~ this specification~~s~~.

Reason for Revision:

This revision streamlines the content in Subsection G) and provides better guidance regarding what constitutes a "defective" pavement marking.

New Bid Item Required (X one)	**Yes**	**No** X
Bid Item Modification Required (X one)	**Yes**	**No** X
Bid Item Obsoletion Required (X one)	**Yes**	**No** X
Comments:		

County or City Comments:

This specification revision was sent to the Local Systems Bureau on _____, 2025. They were asked to forward to all interested parties and comments were invited to be sent in through February 28, 2025. ___ comments were received and were addressed within the language of this proposal.

Industry Comments:

This specification revision was presented to the Iowa ATSSA Chapter at their meeting on February 4, 2025. Comments were invited to be sent in through February 28, 2025. ___ comments were received and were addressed within the language of this proposal.

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SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove / Ben Hucker	**Bureau/Office:** Construction / Maintenance	**Item** FILLED IN BY SPECIFICATIONS
Submittal Date: 4/10/2025	**Proposed Effective Date:**	
Article No.: 4183.03 **Title:** FAST DRY WATERBORNE TRAFFIC PAINTS	**Other:**	

Specification Committee Action:			
Deferred:	**Not Approved:**	**Approved Date:**	**Effective Date:**
Specification Committee Approved Text:			
Comments:			
Specification Section Recommended Text:			
Comments:			

Member's Requested Change: (Do not use 'Track Changes', or 'Mark-Up'. Use ~~Strikeout~~ and Highlight.)

4183.03 FAST DRY WATERBORNE TRAFFIC PAINTS.

A. General Requirements.

1. Use paint that:

- **a.** Is capable of being heated and spray applied up to a temperature of 120F without damaging the formulation or serviceability of the product and the traffic striping equipment.
- **b.** Is not damaged or deteriorates when reheated or if held under heated conditions for 6 hours.
- **c.** Provides proper anchorage and refraction for glass beads when the beads are applied at the rate of 6 pounds per gallon.
- **d.** Is free of heavy metals as defined by the US EPA.
- **e.** Free of skins, pigment agglomerates, and foreign matter.
- **f.** Shows no evidence of excessive settling, gelling, skinning, spoilage, or livering upon storage in sealed containers under normal above freezing temperatures within a 12 month period in the sealed delivery container.

2. When the air temperature is below the freezing point (32F (0C)), ship or store the paint in an insulated vehicle or storage building with heating capability to ensure the inside temperature is held above freezing.

B. Specific Requirements.

1. Composition.

The composition of the paint is left to the discretion of the manufacturer as long as the finished product meets the following requirements and applicable Federal, State, or local regulations for products of this type.

a. Pigment Content.

Pursuant to AASHTO M 348 the percent pigment must remain within 5%+/- of the target pigment value. Percent pigment by weight of the finished product to be from 55~~8~~.0% to 65~~3~~.0% as tested by ASTM D 3723. The white paint must contain a minimum of 1 pound per gallon of TiO2 ASTM D 476 Type II Rutile 92% minimum TiO2 tested in accordance with ASTM D 1394 or ASTM D 4764. The total solids of high build paint when tested in accordance with ASTM D 2369 must be a minimum of 76% by weight.

b. Resin Solids.
Composed of 100% acrylic emulsion polymer (per Materials I.M. 483.03) or approved equal that allow finished paint products to meet all other areas of the specifications.

c. Nonvolatile Vehicle.
Pursuant to AASHTO M 348 the Nonvolatile content, % must remain within 5%+/- of the target value for nonvolatile content, %.

1) No less than 42.0% by weight for white paint and no less than 44.0% by weight for yellow paint.

2) Use the the following formula for calculating nonvolatile vehicle (NVV):

NVV= (N-P)/(100-P)

Where:
N = the percent by weight of non-volatiles as determined by ASTM D 2369
P = the percent weight of pigment as determined by ASTM D 3723

Reason for Revision:

In extended discussions with industry and moving to be in line with AASHTO M 348, the lower percent pigments for paints tend to perform better in the long run. Due to this it is decided to lower the bottom threshold for percent pigment from 58% down to 55%, upper from 63% to 65%. Very small change for manufacturers and will allow a greater product range for approval. Also placing a range on the percent pigment & Nonvolatile content % from target value pursuant to AASHTO M 348.

New Bid Item Required (X one)	**Yes**	**No**
Bid Item Modification Required (X one)	**Yes**	**No**
Bid Item Obsoletion Required (X one)	**Yes**	**No**

Comments:

County or City Comments:

This specification revision was sent to the Local Systems Bureau on _____, 2025. They were asked to forward to all interested parties and comments were invited to be sent in through February 28, 2025. ___ comments were received and were addressed within the language of this proposal.

Industry Comments:

This specification revision was presented to the Iowa ATSSA Chapter at their meeting on February 4, 2025. Comments were invited to be sent in through February 28, 2025. ___ comments were received and were addressed within the language of this proposal.