

SUDAS Revision Submittal Form

Status Date: As of 5/12/2017 **Topic:** HMA overlay pavement
Manual: Specifications **Manual Location:** Section 7021

Requested Revision: *See attached.*

Reason for Revision: New section for HMA overlays projects.

Comments: None.

District: 1 2 3 4 5 6

Initial Comments: None.

Final Comments: None.

Action: Deferred Not Approved Approved

District: 1 2 3 4 5 6

Initial Comments: None.

Final Comments: None.

Action: Deferred Not Approved Approved

District: 1 2 3 4 5 6

Initial Comments: None.

Final Comments: None.

Action: Deferred Not Approved Approved

District: 1 2 3 4 5 6

Initial Comments: None.

Final Comments: Reorganize subsection 2.04 to include conventional binder grades and split out the high performance thin lift information. *Note - done.*

Action: Deferred Not Approved Approved

District: 1 2 3 4 5 6

Initial Comments: None.

Final Comments: None.

Action: Deferred Not Approved Approved

District: 1 2 3 4 5 6

Initial Comments: None.

Final Comments: Add “do not use RAS” to 2.04, C. *Note - done.*

Action: Deferred Not Approved Approved

Final District Action Summary: All 6 districts approved; see comments above.

Board of Directors Action: Approved.

HOT MIX ASPHALT PAVEMENT OVERLAY**PART 1 - GENERAL****1.01 SECTION INCLUDES**

- A. Hot Mix Asphalt (HMA) Pavement Overlay

All of the overlay information currently included in Section 7020 will be deleted.

1.02 DESCRIPTION OF WORK

Includes the requirements for the construction of HMA overlay surface course placed upon an existing pavement.

1.03 SUBMITTALS

Comply with Division 1 - General Provisions and Covenants and Section 7020, 1.03.

1.04 SUBSTITUTIONS

Comply with Division 1 - General Provisions and Covenants.

1.05 DELIVERY, STORAGE, HANDLING, AND SALVAGING

Comply with Division 1 - General Provisions and Covenants and Section 7020, 1.05.

1.06 SCHEDULING AND CONFLICTS

Comply with Division 1 - General Provisions and Covenants, as well as Section 7020, 1.06.

1.07 SPECIAL REQUIREMENTS

None.

1.08 MEASUREMENT AND PAYMENT

Comply with Section 7020, 1.08, except as modified herein:

A. HMA Overlay by Ton:

- 1. Measurement:** Measurement will be in tons of HMA overlay.
- 2. Payment:** Payment will be at the unit price per ton of HMA overlay.
- 3. Includes:** Unit price includes, but is not limited to, asphalt mix with asphalt binder, tack coats between layers, construction zone protection, and quality control.

B. HMA Overlay by Square Yards:

- 1. Measurement:** Measurement will be in square yards for each different thickness of HMA overlay. The area of manholes, intakes, or other fixtures in the pavement will not be deducted from the measured pavement area.
- 2. Payment:** Payment will be at the unit price per square yard for each thickness of HMA overlay.
- 3. Includes:** Unit price includes, but is not limited to, asphalt mix with asphalt binder, tack coat, construction zone protection, and quality control.

PART 2 - PRODUCTS

2.01 HMA OVERLAY MATERIALS

Comply with Iowa DOT Section 2303, with the following exception:

Follow the procedure outlined in Iowa DOT Materials I.M. 510 for HMA mixture designs, except replace Table 1 in Appendix A, HMA Mixture Design Criteria with the SUDAS HMA Mixture Design Criteria (Table 7020.01) (Tables 2 through 4 in Appendix A still apply).

2.02 WARM MIX ASPHALT MATERIALS

If use of warm mix asphalt (WMA) is approved by the Jurisdiction, comply with Iowa DOT Section 2303.

2.03 RECYCLED ASPHALT MATERIALS

When recycled asphalt materials (RAM) are used and they exceed 20% replacement of the total binder, the binder grades may need to be modified. Comply with Iowa DOT Materials I.M. 510.


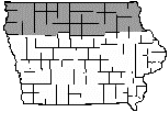
A. Recycled Asphalt Pavement: If use of recycled asphalt pavement (RAP) is approved by the Jurisdiction, comply with Iowa DOT Section 2303.

B. Recycled Asphalt Shingles: If use of recycled asphalt shingles (RAS) is approved by the jurisdiction, comply with Iowa DOT Section 2303.

2.04 BINDER GRADES

A. Conventional Overlays: Use the specified binder grade meeting the following requirements.

Table 7021.01: Asphalt Binder for Local Agencies

Asphalt Mixture		PG Binder			
Design Traffic (1 x 10 ⁶ ESALs)	Mix Designation	Design Traffic (1 x 10 ⁶ ESALs)	Design Speed (MPH)		
≤ 0.3 M	LT	≤ 0.3 M	and ≤ 45	58-28S	58-28S
0.3 M to 1 M	ST	0.3 M to 1 M	and > 45	58-28S	58-28S or 58-34S ¹
0.3 M to 1 M	ST	0.3 M to 1 M	and 15 to 45	58-28S ²	58-28S ² or 58-34S ^{1,3}
1 to 10 M	HT	1 to 10 M	and 15 to 45	58-28H	58-34H
Overlays	LT/ST/HT	≤ 10M	and 15 to 45	64-22S ⁴ or 58-28S or H	58-28S or H

L = Low S = Standard H = High

¹ Use of PG 58-34 binder should consider the low temperature reliability in the project area, the availability and cost of different binders, and the ability of the contracting agency to provide on-going maintenance activities.

² Use of PG 58-28H should be considered if heavy truck or bus traffic is present

³ For high traffic roadways use 58-34H binders

⁴ If methods are used to retard reflective cracking, PG 58-28S or H is recommended

2.04 BINDER GRADES (Continued)

- B. HMA Interlayer:** Use PG 58-34E meeting AASHTO T 321 with minimum 100,000 cycles to failure. Comply with Iowa DOT Materials I.M. 510A. Do not use RAP.
- C. High Performance Thin Lift:** Use PG 58-34E meeting AASHTO T-324 with minimum 90% elastic recovery. Comply with Iowa DOT I.M. 510A. Do not use RAS.

2.05 HIGH PERFORMANCE THIN LIFT**A. Mix Design:**

Design Gyration	50
Design Target (%Gmm)	3.0
Film Thickness	8.0 to 13.0
Aggregate Quality	A
Minimum crushed content	50%
FAA minimum	40
Minimum sand equivalency	50
VMA	16%
Friction Aggregate	Minimum 50% Type 4 or better

- B. Replacement:** Do not use more than 15% binder replacement. Do not use RAS.
- C. Hamburg Testing:** Compact to 3.5% air voids. No more than 8 mm rutting in first 8,000 passes.
- D. Gradation:**

Sieve Size	Minimum Percent Passing	Maximum Percent Passing
1 1/2"		
1"		
3/8"	91	100
No. 4		90
No. 8	27	63
No. 16		
No. 30		
No. 50		
No. 100		
No. 200	2	10

2.06 NOMINAL AGGREGATE SIZE FOR ASPHALT OVERLAYS

Nominal aggregate size dictates lift thickness. Minimum lift thickness should be at least 3 times the nominal maximum aggregate size to ensure aggregate can be aligned during compaction to achieve required density. Therefore, desired lift thickness can direct the decision on nominal aggregate size to use.

PART 3 - EXECUTION**3.01 HMA OVERLAY**

Comply with Section 7020, Iowa DOT Section 2303, Section 7040, and the following:

A. Preparation of Existing Pavement:

1. Remove pavement by milling as required by the contract documents. Mill to the depth, cross section, or profile specified.
2. Sweep existing pavement with approved broom. Provide dust control during brooming.
3. If milling is not required, correct irregularities in existing pavement cross slope with partial patching, full-depth patching, and leveling base coat prior to placing the overlay. Use base or intermediate course mixes to correct irregularities. Surface course thickness per plan.

B. Special Requirements for Thin Lift Overlays and HMA Interlayer:

1. Apply tack coat prior to placement of thin lift overlay and HMA interlayer. Comply with Section 7020.
2. Compact with steel wheel roller.
3. Do not pave unless ambient air temperatures are at least 60°F and rising.

3.02 PROTECTION FROM TRAFFIC

Comply with Section 7020, 3.03.

3.03 DEFECTS OR DEFICIENCIES

Comply with Section 7020, 3.04.

3.04 PAVEMENT SMOOTHNESS

Comply with Section 7020, 3.05.

3.05 QUALITY CONTROL:

A. General: Comply with Section 7020, 3.06.

B. Special Requirements for Thin Lift Overlays and HMA Interlayer:

1. Complete field voids for Class II compaction as defined in Iowa DOT Section 2303.
2. Sample and test at least one hot box per day of production unless otherwise approved by the Engineer. Apply Iowa DOT Article 2303.05, A, 3 for AAD acceptance. Air void target is based on approved JMF.
3. Take at least one cold feed each day for gradation control.

3.06 REMOVAL OF PAVEMENT

Comply with Section 7020, 3.07 and Section 7040.

END OF SECTION