

SUDAS Revision Submittal Form

Status Date: As of 5/18/2023 **Topic:** Pavement smoothness requirements
Manual: Specifications **Manual Location:** Sections 7010, 3.07 and 7020, 3.09

Requested Revision:

Section 7010 (PCC Pavement), 3.07 (Quality Control):

C. Pavement Smoothness: Evaluate pavement smoothness for all PCC pavement and overlay surfaces.

1. **Straightedge:** The Engineer will check PCC pavement surfaces with a 10 foot straightedge placed parallel to the centerline. Areas showing high spots of more than 1/4 of an inch in 10 feet will be marked. Complete surface corrections according to the following procedures in Iowa DOT Section 2316 to an elevation where the area or spot will not show surface deviations in excess of 1/8 inch when tested with a 10 foot straightedge:
 - a. Complete surface corrections by diamond grinding, placing a PCC overlay, or replacement.
 - b. Use grinding and texturing equipment complying with Iowa DOT Section 2532. Use a minimum 36 inch wide cutting head, unless a 24 inch cutting head is necessary due space limitations.
 - c. Perform surface correction parallel to lane lines or edge lines as directed by the Engineer. Make each pass parallel to the previous pass. Ensure the ground surface is of a uniform texture.
 - d. Do not allow adjacent passes to overlap more than 1 inch or have a vertical difference of 1/8 inch as measured from bottom of groove to bottom of groove.
 - e. Begin and end smoothness corrections at lines normal to the pavement lanes lines or edge lines within any one corrected area. Proceed from the centerline or lane line toward the pavement edge to maintain pavement cross slope.

Surface corrections will be completed at the direction of the Engineer with no additional cost to the Contracting Authority.

2. **Profilograph Inertial Profilers:**
 - a. If specified in the contract documents, comply with Iowa DOT Section 2316 2317 and Materials I.M. 341, Appendix A to measure pavement smoothness with a profilograph an inertial profiler and start appropriate corrective measures, if necessary; the engineer will determine the corrective measures to be taken. No incentive for pavement smoothness will be made.
 - b. Evaluate according to the smoothness requirements of Table 7010.04 and make surface corrections and/or price reductions. Surface corrections will be completed with no additional cost to the Contracting Authority. No incentive for pavement smoothness will be made.
 - c. Smoothness measurements will be suspended for structures and through intersections.

Table 7010.04: Pay Factor if Profilograph Used

Segment Index (inch/mile)	Pay Factor
0-22.0	100%
22.1-30.0	97%
30.1 and over	Grind as directed by Engineer

Table 7010.04: Smoothness Adjustment/Correction

Segment Speed	Mean Roughness Index (inches per mile)	Pay Factor
Greater than 45 mph	< 200	100%
	200 to 250	-\$15.00/foot/lane or grind ¹
	≥ 250	Grind ¹
Less than or equal to 45 mph	< 250	100%
	250 to 300	-\$15.00/foot/lane or grind ²
	≥ 300	Grind ²

¹ Correct to below 200 inches per mile

² Correct to below 250 inches per mile

Section 7020 (Asphalt Pavement), 3.05 (Pavement Smoothness):

A. Straightedge: The Engineer will check asphalt pavement surfaces with a 10 foot straightedge placed parallel to the centerline. Areas showing high spots of more than 1/4 of an inch in 10 feet will be marked. Complete surface corrections according to the following procedures in Iowa DOT Section 2316 to an elevation where the area or spot will not show surface deviations in excess of 1/8 inch when tested with a 10 foot straightedge.

1. Complete surface corrections by diamond grinding, placing an asphalt overlay per Section 7021, replacing the area per Section 7040, or inlaying the area.
2. For diamond grinding, perform the same work and use the same equipment as specified in 7010, 3.07, C. After diamond grinding, cover the surface with a slurry seal complying with Section 7070.
3. If the surface is corrected by overlay, replacement, or inlay, begin and end the surface correction with a transverse saw cut normal to the pavement lane lines or edge lines within any one area. Ensure the profile of the surface is smooth with no bumps or dips at the beginning or end of the correction. Correction must be a minimum of the entire lane width.

Surface corrections will be completed at the direction of the Engineer with no additional cost to the Contracting Authority.

B. Profilograph Inertial Profilers:

1. If specified in the contract documents, comply with Iowa DOT Section 2316 2317 and Materials I.M. 341, Appendix A to measure pavement smoothness with a profilograph an inertial profiler and start appropriate corrective measures, if necessary; the engineer will determine the corrective measures to be taken. Ensure the evaluation is certified according to Iowa DOT Materials I.M. 341. Position the center wheel of the profilometer 6 feet from the centerline or the lane line. No incentive for pavement smoothness will be made.
2. Evaluate according to the smoothness requirements of Table 7020.04 and make surface corrections and/or price reductions. Surface corrections will be completed with no additional cost to the Contracting Authority.
3. Smoothness measurements will be suspended for structures and through intersections.

Table 7020.04: Price Reduction for Pavement Smoothness

Initial Profile Index (inch/mile/segment)	New Pavements (\$/segment)	Resurfaced Pavements (\$/segment)
12.1 - 22.0	Unit price	Unit price
22.1 - 30.0	\$500	\$250
30.1 and over ⁺	Grind only	Grind only

Table 7020.04: Smoothness Adjustment/Correction

Segment Speed	Mean Roughness Index (inches per mile)	Pay Factor
Greater than 45 mph	< 200	100%
	200 to 250	-\$15.00/foot/lane or correct ¹
	≥ 250	Correct ¹
Less than or equal to 45 mph	< 250	100%
	250 to 300	-\$15.00/foot/lane or correct ²
	≥ 300	Correct ²

¹ Correct to below 200 inches per mile

² Correct to below 250 inches per mile

Reason for Revision: Updated pavement smoothness quality control to reflect DOT deleting their specifications section on profilograph and adding inertial profiler.

Comments: None.

District: 1 2 3 4 5 6

Comments: None.

Action: Deferred Not Approved Approved

District: 1 2 3 4 5 6

Comments: Define MRI. *Note - done.*

Action: Deferred Not Approved Approved

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

Board of Directors Action: Update the language in 7010, C, 2, a to match what was used in 7020 to allow the engineer to determine the corrective measure to be taken. Approved with that change. *Note - done.*