

1. RIDE SPECIFICATIONS FOR FLEXIBLE PAVEMENT

A. Construction Requirements. Construct all surfacing courses to provide completed plant mix bituminous pavements that meet surface smoothness levels derived from the International Roughness Index (IRI) for a Class (I, II, III, OR IV) project and that meet the surface profile requirements generated by profile index (PI) measurements of the finished surface. Surface smoothness and surface profile will be analyzed from data collected by the Department using a Class I Laser Road Profiler following MT-422. The eighth paragraph of Subsection 401.03.2 F. 1. is hereby rescinded for those roadway sections subject to ride evaluation.

1) Surface Smoothness. Target IRI values are determined by project classification based on the opportunities for improving the ride, by the pre-paving IRI value, or by a combination of both as follows:

Class I Projects:

Target IRI Values - 46 to 65 inches per mile (0.72 to 1.03 meters per kilometer)

- Projects with three or more opportunities for improving the ride.
- Projects with a pre-paving IRI <140 in/mi (2.21 m/km); with two opportunities for improving the ride.
- Single lift overlays with a pre-paving IRI value <90 in/mi (1.42 m/km).

Class II Projects:

Target IRI Values - 55 to 75 inches per mile (0.88 to 1.19 meters per kilometer)

- Projects with a pre-paving IRI = >140 in/mi (2.21m/km); with two opportunities for improving the ride.
- Projects with a single opportunity for improvement with a pre-paving IRI value of >90 in/mi (1.42 m/km) and <140 in/mi (2.21 m/km).

Class III Projects:

Target IRI Values - 56 to 80 inches per mile (0.88 to 1.26 meters per kilometer)

- Projects with a single opportunity for improvement with a pre-paving IRI value of = >140 in/mi (2.21 m/km) and <190 in/mi (3.00 m/km).

Class IV Projects:

Target IRI Values - 61 to 90 inches per mile (0.95 to 1.42 meters per kilometer)

- Projects with a single opportunity for improvement with a pre-paving IRI value of >190 in/mi (3.00 m/km).

Each opportunity to improve the ride is one of the following:

- Placing a gravel base or surfacing course,
- Placing plant mix bituminous base,
- Placing cement treated base,
- Placing pulverized plant mix surfacing,
- Milling,
- Cold recycling (milling and laydown),
- Each full 45 mm (0.15 ft.) increment of new plant mix surfacing.

Leveling is not included as an opportunity to improve the ride.

2) Surface Profile. Correct surface profile defects having a Profile Index (PI) greater than 10mm (0.40 inches) in a distance of 7.62 meters (25 feet) within 30 calendar days of notification but prior to seal and cover operations. Correct surface profile defects by milling and filling deficient pavement depths or by diamond grinding excess pavement depths. Corrected surface profile defects will be retested and evaluated. Pavement thickness will be measured after profile corrections are made. Ensure corrected pavements do not create a transverse

height difference between adjacent lanes exceeding 3 mm (1/8 inch). Fog seal corrected areas if the roadway is not chip sealed prior to winter shutdown.

3) Testing and acceptance. The Department will test for surface smoothness and surface profile prior to the placement of seal and cover on the final lift of plant mix bituminous surfacing pavement. Testing will consist of a single pass measurement in each travel lane. Data collected for each wheel path will be averaged for that lane. Tests will be performed within three working days (extended by rain or other weather conditions) of completion of all paving. The department will test divided highways within three working days (extended by inclement weather conditions) of completion of paving for each direction of travel. Ensure that the entire finished lane width to be tested is not impeded and is available to department personnel at the time of testing. Test results will be furnished within two working days.

If the entire final lift of pavement cannot be completed before winter shutdown, data will be collected for all roadway sections paved through the final lift. Evaluation of the remaining pavement will be performed once the paving is completed.

4) Courtesy Testing. Provide at least five days notice to the Project Manager to obtain a courtesy test. The department will provide a courtesy smoothness and surface profile tests once per project, on not less than two and not more than three miles of continuous new pavement. Courtesy test results are informational only. The contractor interprets the courtesy test results and determines the impact to the work. The department will perform separate tests for acceptance evaluation.

5) Surface Smoothness. The surface smoothness analysis will be used to determine the actual IRI for calculating pay factors for the entire plan depth of bituminous mix section placed in this contract.

Actual IRI values will be determined on all mainline travel lanes including climbing lanes, passing lanes, and ramps that are 0.30 km (0.2 miles) or longer. Bridge decks will be included only if they are paved as part of the project.

Smoothness data will not be evaluated for the following roadway sections:

a) Climbing lanes and passing lanes, less than 0.30 km long (0.2 miles).

b) Turning Lanes

c) Acceleration and deceleration lanes.

d) Shoulders and gore areas.

e) Road approaches.

f) Horizontal curves 275 m (900 feet) or less in centerline radius, and pavement within the superelevation transitions of these short radius curves.

g) Pavement within 45 m (150 feet) of bridge decks, approach slabs, and the terminal paving points of the project.

6) Surface Profile. Areas requiring corrective work will be identified using the surface profile generated by Profile Index (PI) measurements of the finished surface. The profile will be analyzed using a zero blanking band.

All areas not tested for surface profile under this provision are to meet subsection 401.03.14 Surface Tolerance requirements.

B. Measurement.

Surface Smoothness. The surface smoothness will be measured using the International Roughness Index (IRI). The surface smoothness will be evaluated by section. A section is defined as a single paved lane; 3.60 m's (12 feet) wide or greater, 0.3 km (0.20 mile) long. Partial sections will be prorated or added to an abutting section.

The following project classification pay adjustment factors will be applied to each section:

<u>Project Classification</u>	<u>Actual IRI (Inches/mi)</u>	<u>Actual IRI (Meters/km)</u>	<u>Pay Factor</u>
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<u>Project Classification</u>	<u>Actual IRI (Inches/mi)</u>	<u>Actual IRI (Meters/km)</u>	<u>Pay Factor</u>
Class I	<40	<0.63	1.25
	40-45	0.63-0.71	1.10
	46-65	0.72-1.03	1.00
	>65	>1.03	0.80
Class II	<45	<0.71	1.25
	45-55	0.71-0.87	1.10
	56-75	0.88-1.19	1.00
	>75	>1.19	0.80
Class III	<56	<0.88	1.10
	56-80	0.88-1.26	1.00
	>80	>1.26	0.90
Class IV	<61	<0.96	1.10
	61-90	0.96-1.42	1.00
	>90	>1.42	0.90

C. Basis of Payment

Surface Smoothness. This is a Class _____ project. The pay factor will be applied to the unit price for each type of plant mix surfacing placed in each section. Calculate the quantity of surfacing for each section as follows:

(L x W x D) x Unit Weight, where:

L = Length of the lot measured

W = Width of the travel lane measured

D = Depth of the entire bituminous surfacing section placed under this contract.**

Unit Weight = 98% of mix design bulk density for each type of bituminous surfacing. (When accepting density with a nuclear gauge)

Unit Weight = 93% of Rice Gravity from the mix design for each type of bituminous surfacing. (When accepting density by core method.)

** Where different types of bituminous surfacing are used on successive lifts, the pay factor is applied separately to each type of surfacing. In these cases the depth (D) is calculated using the plan depth for each type of bituminous surfacing.

If more than 10 percent of the density tests do not meet minimum plant mix pavement density requirements no ride sections will qualify for a pay factor greater than 1.00 if more than 10 percent of the ride sections are subject to price reductions no other sections will qualify for a pay factor greater than 1.00. Price reductions will be calculated using the greater of the Contract Bid Price or of the base unit price for the grade of Plant Mix Bituminous Surfacing specified in the contract. Correction of profile defects will not be cause to reevaluate any section for surface smoothness. Quality incentive allowances will be used to offset any price reductions on progress estimates. Any quality incentive allowance remaining after all price reductions have been deducted will be paid as a lump sum when all work on the item is complete.

All work to prepare the roadway for testing, including but not limited to sweeping, is incidental to the work and is not measured for payment. Include all costs and resources to prepare the roadway for surface tolerance testing in the Plant Mix Bituminous Surfacing bid

item. Requests for additional compensation by reason of this provision will not be considered nor allowed.