

SECTION 404—EVALUATION OF BITUMINOUS PAVEMENT RIDE QUALITY AND PAYMENT OF INCENTIVE

404.1 DESCRIPTION—This work is evaluating a bituminous pavement surface profile and determining the ride-quality incentive associated with the pavement surface profile.

(a) General Requirements. Determine the ride quality of finished pavement surfaces, including overlaid bridge approach slabs and overlaid bridge decks. In the presence of the Inspector, measure the pavement surface profile according to [PTM No. 428](#). Provide the resultant International Roughness Index (IRI) data to the Representative. The Representative will determine payment for each ride-quality lot based on the IRI.

Measure the pavement surface of the following excluded areas separate from the pavement surface profile of ride-quality lots. The Representative will not include measurements from excluded areas to determine lot incentive payment.

- Pavement surfaces not constructed as a full-depth overlay, as indicated, such as the vertical transition areas at the limits of paving and at the approaches to bridges.
- Bridge decks unless overlaid.
- Ramps less than 457 m (1,500 feet) in length.
- Tapered pavement less than 3.6 m (12 feet) wide.
- Shoulders, medians, and other pavement surfaces indicated.
- Pavement from 1.5m (5 feet) before and up to 1.5m (5 feet) after any appurtenances such as water boxes, manholes, railroad tracks, and inlets extending out into the pavement.
- Partial lots less than 30m (100 feet).
- Roadways with a posted speed limit of 65 km/hour (40 miles per hour) or lower.
- Pavement that is not reconstructed with at least two of the following operations: profile milling, scratch course, leveling course, binder course, and wearing course, and on bridge decks only, a waterproofing membrane.

(b) Lot Size. A full lot is 161 m (528 feet) of a single pavement lane. The Representative will designate lots starting at the beginning limit of paving and continuing to the ending limit of paving for each pavement lane and ramp that is 3.6 m (12 feet) or wider. Do not include the length of excluded areas in the 161 m (528 feet).

The Representative will designate a partial lot at the ending limit of paving and at an excluded area, when the lot length is less than 161 m (528 feet). The Representative will evaluate a partial lot as a percentage of a full lot.

404.3 CONSTRUCTION—

(a) Equipment and Operator. Provide pavement surface profile measuring equipment that has been verified by the Department according to [PTM No. 428](#). In the presence of the Inspector, calibrate the distance sensor and check the profile system calibration before each day's testing.

Provide an operator that is Department certified according to [PTM No. 428](#).

(b) Testing.

1. Lots. Provide the traffic control and station marking necessary to accommodate testing. Remove objects and equipment from the surface and sweep the surface as necessary to remove debris. In the presence of the

Inspector, determine the pavement surface profile for each lot according to [PTM No. 428](#). At the completion of testing, immediately submit the lot IRI data, as defined in [PTM No. 428](#), to the Representative.

2. Excluded Areas. Provide the traffic control necessary to accommodate testing. Test the entire surface of each excluded area in stages using a 3 m (10-foot) straightedge. At each stage, hold the straightedge in contact with the surface and parallel to the roadway centerline and, in successive positions, test the pavement surface profile from one side of the excluded area to the other. Advance the test location to the next stage by moving the straightedge along the roadway centerline not more than 1.5 m (5 feet).

(c) Acceptance.

1. Lots. The Representative will compare the lot IRI to [Table A](#) in [Section 404.4](#) to determine if the lot requires corrective action. Additionally, perform corrective action on any individual bump (must grind) where the irregularity is more than 5 mm (3/16 inch) when tested with a 3 m (10-foot) straightedge.

2. Excluded Areas. Perform corrective action where irregularities are more than 5 mm (3/16 inch) when tested with a 3 m (10-foot) straightedge. To improve the ride quality and at the Department's expense the Representative may require grinding of excluded areas that conform to the acceptable straightedge surface tolerances specified in [Section 404.3\(c\)](#).

(d) Corrective Action.

1. Do not produce a deviation, such as a ridge or valley with the adjacent pavement, of more than 3 mm (1/8 inch) when measured on the transverse profile. Correct a sufficient length of pavement to correct the pavement surface profile without producing additional high or low points. Retest the lots and excluded areas after completing corrective action. Perform additional measurements of the pavement surface profile, as necessary, for the Representative to determine which lots do not require additional corrective action. Correct surfaces to a uniform texture and cross section.

2. Perform all corrective action before testing for pavement depth. Use one or more of the following methods:

2.a. Carbide Grinding. Use carbide grinding for correcting areas 4.5 m (15 feet) in length or less. Use grinders of the walk-behind type that have cutting heads of carbide tipped shackles, stars, or blades and have a locking depth control to produce a uniform pavement surface texture.

Provide a pavement surface texture consisting of parallel grooves between 2 mm and 6 mm (3/32 inch and 1/4 inch) wide with a "land area" between grooves of 2 mm and 5 mm (1/16 inch and 3/16 inch). Operate the grinder by making multiple passes if necessary, with a maximum depth of any single pass of 3 mm (1/8 inch). Grind longitudinally or transversely across the pavement surface.

2.b Diamond Grinding. As specified in [Section 514.3](#) and modified as follows:

(d) Tolerance. Delete this section.

Unless otherwise approved, grind the entire lane width.

2.c Removal and Replacement. Remove the surface course of the entire pavement lane width by milling and replace at least the minimum layer depth of the specified surface course. Place more than the minimum layer depth if necessary to correct the pavement surface profile.

(e) Defective Work. A ride-quality pavement lot is defective if:

- The IRI of the lot exceeds the maximum acceptable IRI specified in [Table A](#) of [Section 404.4](#).

- Any individual bump (must grind) exists in the lot where the irregularity is more than 5 mm (3/16 inch) when tested with a 3 m (10-foot) straightedge.
- The surface adjacent to another ride-quality lot contains a ridge or valley of more than 3 mm (1/8 inch).
- The specifications for pavement construction require removal and replacement of pavement within the ride-quality lot.

Unless the Department and Contractor agree to leave a defective lot in place as specified in [Section 404.4](#), remove and replace defective areas and retest the ride-quality lot.

404.4 MEASUREMENT AND PAYMENT—Dollar

The proposal will include an item and a predetermined amount of money for Evaluation of Bituminous Pavement Ride Quality and Payment of Incentive. The contract item will have a unit of measure of DOLLAR, a unit price of \$1.00, and a quantity equal to the predetermined amount.

Due to the incentive or bonus status of the payment being made, the provisions of [Section 110.02\(d\)](#) are not applicable to this item.

Measured and paid for, under the Evaluation Of Bituminous Pavement Ride Quality And Payment Of Incentive item as follows:

If the lot is not defective, [Table A](#) and the IRI for each lot will be used to determine the incentive payment for ride quality.

The incentive payment for a lot subjected to corrective action will be determined using [Table A](#) and the IRI for the lot after the Contractor completes corrective action.

The incentive payment for a partial lot will be determined as a percentage of a full lot.

After corrective action, the Contractor may leave a defective lot in place if the District Executive provides written approval and the Contractor accepts a \$4,000 downward adjustment (rebate) of the amount paid for the lot.

Costs associated with evaluating pavement ride quality will not be paid for separately.

TABLE A
Payment Schedule for Ride Quality Incentive

SCHEDULE A	
For Expressway Work Using Three Operations	
IRI mm/km/lot (inches/mile/lot)	Amount
≤ 553 (35)	\$600
≤ 790 (50)	\$300
≤ 948 (60)	\$150
≤ 1105 (70) *	\$0
> 1105 (70)	Corrective action required
* Maximum acceptable IRI	

SCHEDULE B	
For Expressway Work Using Two Operations and Non-Expressway Work Using Two or More Operations	
IRI mm/km/lot (inches/mile/lot)	Amount
≤ 710 (45)	\$600
≤ 868 (55)	\$300
≤ 1105 (70)	\$150
≤ 1420 (90) *	\$0
> 1420 (90)	Corrective action required
* Maximum acceptable IRI	