

G. Smoothness

Pavement smoothness will be accepted only after the Engineer determines that the work was performed according to this and other Specifications. The completed pavement, including corrective work, must meet the applicable profile index value requirements.

Perform smoothness testing as follows:

1. Ensure that the mainline riding surface produces a profile index value no greater than 7 in/mile (100 mm/km) on each travel lane. Conduct tests according to [GDT 78](#).
2. Determine a profile index value for each tracing for each 0.25 mile (0.5 km) segment. Correct individual bumps or depressions that exceed the blanking band by more than 0.2 in (5 mm) at no additional expense to the Department.
3. If a paving operation exceeds a profile index value of 7 in/mile (100 mm/km) per lane for any segment, suspend the paving operation and take corrective action approved by the Engineer.
4. Use [GDT 78](#) to test ramps and acceleration and deceleration lanes to attain an average profile index value no greater than 12 in/mile (200 mm/km) by Rainhart Profilograph for the entire section length. Correct individual bumps or depressions that exceed 0.2 in (5 mm) from the blanking band at no additional expense to the Department.
5. Take pavement profiles that are 4 ft (1.2 m) away from and parallel to the new pavement edges on pavements greater than 16 ft (4.8 m) wide and up to 24 ft (7.2 m) wide.

Test pavement 6 to 16 ft (1.8 to 4.8 m) wide parallel to and at the center line of the pavement section.

6. Begin the 0.25 mile (0.5 km) record segments at the first day's placement and continue until Project completion, except as noted in this Specification.
7. Combine pavement sections less than 700 ft (200 m) long that approach a bridge. Use the previous 0.25 mile (0.5 km) segment to determine the profile index.

Calculate as a separate record segment 700 ft (200 m) sections or greater that approach a bridge. This exception applies also to sections at Project limits.

8. Determine a separate profile index value using [GDT 78](#) for the 100 ft (30 m) of roadway approaching each end of a bridge up to and including the joint with the approach slab.

Average the profile index from the right and left wheelpaths for each 100 ft (30 m) segment for each lane for each approach. The average profile index value shall not exceed 30 in/mile (500 mm/km).

9. Before paving farther, perform and evaluate profiles from the first day's placement.
 - a. After completing and evaluating this test run, adjust equipment as required by the Engineer to improve smoothness before paving continues.
 - b. Complete the report form furnished by the Engineer and attach to the profilograph tracings of each day. Include the following information in each trace:
 - Project number
 - Beginning and ending station numbers
 - 500 ft (150 m) paving stations
 - Traffic direction
 - Lane number
 - Date paved and tested
 - Construction joint locations

Have the certified profilograph operator obtain and evaluate the traces and submit the evaluation to the Engineer. Provide results no later than the end of the second work day following placement.

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10. For mainline pavement, correct 0.25 mile (0.5 km) segments not meeting the profile index requirement using one of these methods:
 - a. Grind the entire lane surface of the 0.25 mile (0.5 km) segment to a profile index value less than 7 in/mile (100 mm/km). Use equipment that meets requirements in [Section 431](#).
 - b. Grind roughness in small segment areas no more than 50 ft (15 m) of full lane width to produce a profile index value no greater than 7 in/mile (100 mm/km).
If more than 50 ft (15 m) of grinding is required, grind the complete 0.25 mile (0.5 km) segment according to Method a, above.
11. Correct ramps and acceleration and deceleration lanes that do not meet the profile index requirement to a profile index no greater than 12 in/mile (200 mm/km). Prevent individual bumps from exceeding 0.2 in (5 mm) from the blanking band. Use equipment specified in [Section 431](#).
12. Correct 100 ft (30 m) bridge approach sections that do not meet the profile index requirement.
 - a. Grind according to [Section 431](#).
 - b. If appropriate, use a bump grinder to correct bumps with a baseline of 5 ft (1.5 m) or less.
 - c. Grind the full lane width even when grinding including individual bumps.
 - d. Retest pavement segments containing corrective slab replacements for Final Acceptance.
13. Correct segments that do not meet the profile index criteria of this Specification at no additional expense to the Department. Retest segments after correction with the Rainhart Profilograph.
14. Notify the Engineer before profile testing. The Engineer will verify the results by randomly selecting a minimum of 1 out of every 10 consecutive record segment profiles to compute the profile index and to compare with Contractor results.

The Engineer may conduct profilograph tests at any time to verify Contractor results. The Department may test record segments if the Engineer determines that the Contractor test results are inaccurate. See [Subsection 430.5.01](#), “Adjustments.”

H. Thickness

The Engineer shall determine the pavement thickness using average core measurements tested according to [GDT 31](#).

The following table contains units for paving widths:

Paving Widths – Feet (meters)	Length of Unit (Bridges Excluded)—Feet (meters)
0 – 24.0 (0 – 7.2)	1000 (300)
24.1 – 36.0 (7.2 – 10.8)	750 (225)
36.1 – 48.0 (10.8 – 14.4)	500 (150)

Areas of equal depth in intersections, entrances, crossovers, ramps, etc. are considered one unit, and the thickness of each unit is determined separately. If appropriate, include small irregular areas as part of another unit.

1. Take one core for each 2,000 yd² (1675 m²) of pavement, or fraction of pavement, in each unit where the Engineer selects.

The Department will take one core at random in each unit.

- a. When the core measurement is deficient 0.2 in (5 mm) or less from the Plan thickness, full payment is made.
- b. When the measurement is deficient more than 0.2 in (5 mm) and not more than 1 in (25 mm) from the plan thickness, two additional cores are secured from the unit and used to determine the average thickness.