

Standard Practice for Estimating Faulting of Concrete Pavements

AASHTO Designation: PP39-00¹

1. Scope

1.1 This protocol describes a method for estimating faulting in jointed concrete pavement surfaces.

Note 1 - Faulting is defined as the difference in elevation across a transverse joint or transverse crack as shown in Figure 1.

1.2 Although the faulting is measured, detailed specifications are not included for equipment or instruments used to make the measurements. Any equipment that can measure with the accuracy stipulated herein and which can be adequately calibrated, is considered acceptable.

1.3 This practice may involve hazardous materials, operation, and equipment. The procedure does not purport to address all of the safety issues, if any, associated with its use. It is the responsibility of the user of this protocol to establish appropriate safety and health practices and determine the applicability of regulatory limitations related to and prior to its use.

2. Reference Documents

2.1 References

2.1.1 "AASHTO Guide for Design of Pavement Structures, 1993," American Association of State Highway and Transportation Officials (AASHTO), 1993.

2.1.2 "Distress Identification Manual for the Long-Term Pavement Performance Project," Strategic Highway Research Program, SHRP-P-338, Washington, D.C., 1993.

3. Significance and Use

3.1 This practice standardizes the procedures for estimating and summarizing faulting on concrete pavement surfaces. It provides consistent estimates of faulting for network level pavement management. The procedure is intended to measure faulting with a vehicle traveling in the designated lane at highway

speeds; however, the provisions for manual measurements are included.

4. Fault Measurement

4.1 It is each agency's responsibility to designate the lane(s) and direction(s) of travel to be surveyed on the basis of sound engineering principles and pavement management needs within the agency.

4.2 Calculate faulting to the nearest 1 mm (0.04 in.) by the following formula:

$$F = D_1 - D_2$$

where:

F = Faulting which is the absolute value for the measured difference. (mm)

D_1, D_2 = Heights measured on either side of a transverse joint or transverse crack in the outside wheelpath. (mm)

5. Recording of Data

5.1 Maintain the length of the data summary interval of 0.1 km (0.062 mi.). As a minimum, measure faulting across all transverse joints or transverse cracks in the outside wheelpath of the survey lane.

5.2 For automated surveys, take measurements at points 75 to 225 mm (3" to 8.8") from the joint or crack and separated by 300 mm (11.8") as shown in Figure 2.

5.3 For manual measurements, include the sampling rate level of at least 10% of all transverse joints or transverse cracks.

5.4 For automated methods, record faulting only when it exceeds the value of 5 mm (0.2").

5.5 When using manual methods, record all faulting measured.

Note 2 - Care must be taken to not measure spalling and classify it as faulting.

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6. Report

6.1 At a minimum, record the following data:

6.1.1 Section Identification - List the following information, if available.

6.1.2 Length of the data collection section. (m)

6.1.3 Maximum value of faulting for all joints per 0.1 km.

6.1.4 The pavement surface temperature. (optional)

6.1.5 The date of collection. (month/day/year)

6.1.6 The total number of transverse joints and transverse cracks with measurable faulting.

6.1.7 Record equipment axle loads and orientation of sensors to axles of influence.

Note 3 - There may be variations in faulting as a result of the axle loads and orientation of sensors to axles of influence.