

Standard Test Method for Use of the Dynamic Cone Penetrometer in Shallow Pavement Applications¹

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1. Scope

1.1 This test method covers the measurement of the penetration rate of the Dynamic Cone Penetrometer with an 8-kg hammer (8-kg DCP) through undisturbed soil and/or compacted materials. The penetration rate may be related to in situ strength such as an estimated in situ CBR (California Bearing Ratio). A soil density may be estimated (Note 1) if the soil type and moisture content are known. The DCP described in this test method is typically used for pavement applications.

1.2 The test method provides for an optional 4.6-kg sliding hammer when the use of the 8-kg sliding mass produces excessive penetration in soft ground conditions.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Terminology

2.1 *Definitions of Terms Specific to This Standard:*

2.1.1 **8-kg DCP dynamic cone penetrometer with an 8 kg hammer** (see Fig. 1)—a device used to assess the in situ strength of undisturbed soil and/or compacted materials.

2.1.2 **sliding attachment** (see Fig. 1)—an optional device used in reading the distance the DCP tip has penetrated. It may be fastened to the anvil or lower rod to hold/slide along a separate measuring rod, or it may be fastened to the separate rod and slide along a graduated drive rod.

3. Summary of Test Method

3.1 The operator drives the DCP tip into soil by lifting the sliding hammer to the handle then releasing it. The total penetration for a given number of blows is measured and recorded in mm/blow, which is then used to describe stiffness, estimate an in situ CBR strength from an appropriate correlation chart, or other material characteristics.

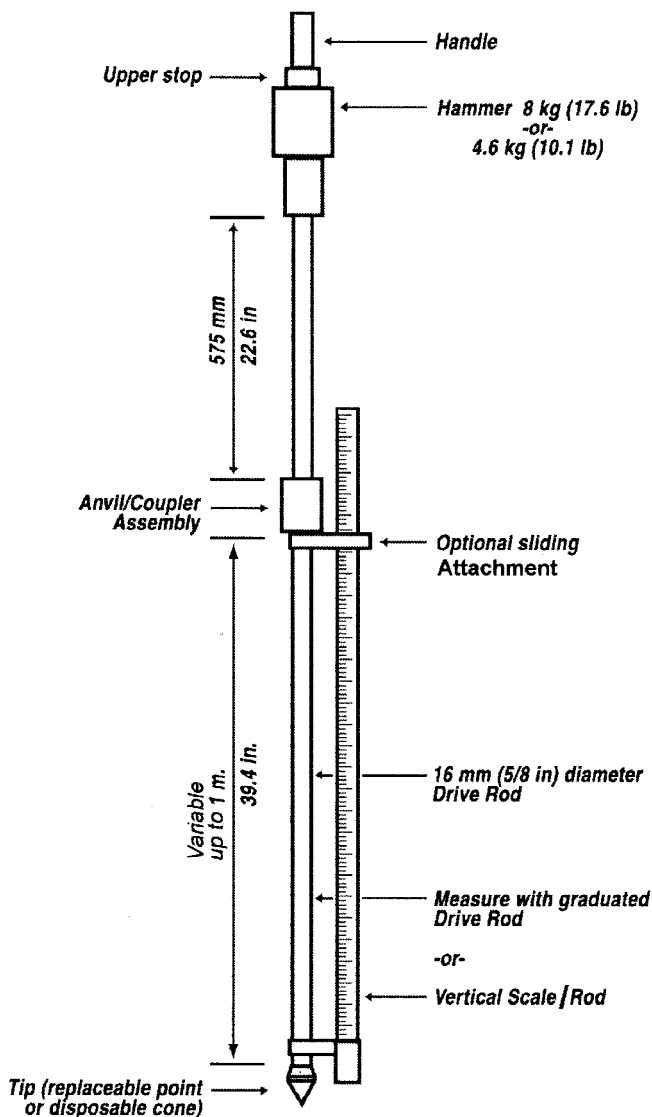


FIG. 1 Schematic of DCP Device

¹ This test method is under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.39 on Non-Destructive Testing of Pavements.

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