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DIVISION OF ENGINEERING SERVICES
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METHOD OF TEST TO ESTIMATE THE MODULUS OF REACTION OF EXISTING ASPHALT CONCRETE PAVEMENT FROM PAVEMENT DEFLECTION

CAUTION: Prior to handling test materials, performing equipment setups, and/or conducting this method, testers are required to read "**SAFETY AND HEALTH**" in Section C of this method. It is the responsibility of the user of this method to consult and use appropriate safety and health practices and determine the applicability of regulatory limitations before any testing is performed.

A. SCOPE

This test method describes the use of pavement deflection measurements to predict the static modulus of reaction on top of an existing asphalt concrete pavement, referred to herein as k_t -value. The predicted static k_t -value can then be used with appropriate portland cement concrete (PCC) pavement stress charts or design tables to determine the proper PCC overlay thickness in whitetopping rehabilitation projects. This k_t -value is the one alternatively obtained from the standard load plate-bearing test ASTM D 1196 performed on the surface of an asphalt concrete pavement. This static kt-value should not be confused with the dynamic elastic k-value of subgrade soil obtained by performing backcalculation on deflection data from a falling weight deflectometer.

B. PROCEDURE

1. Determine the eightieth percentile pavement deflection measurement using California Test 356.

2. As described in California Test 356, convert that measurement to the equivalent *California Deflectometer* value.

3. Either (a) scale the predicted static k_t-value from Figure 1, or (b) take the value from the following interpolation equation:

$k_t = 161.1;$ for $x \leq 431$
$k_t = 620.71 - 174.45 \log x;$ for $x > 431$

where x represents the *California Deflectometer* measurement in microns, and the dimensions of k_t are megaNewtons per cubic meter (MN/m^3).

C. SAFETY AND HEALTH

Prior to performing equipment setups, or conducting this method, testers are required to read both Part C (Section 2) of Caltrans *Laboratory Safety Manual*, and Chapter 8 of the *Maintenance Manual*, entitled "Protection of Workers."

End of Text
(California Test 359 contains 2 pages)

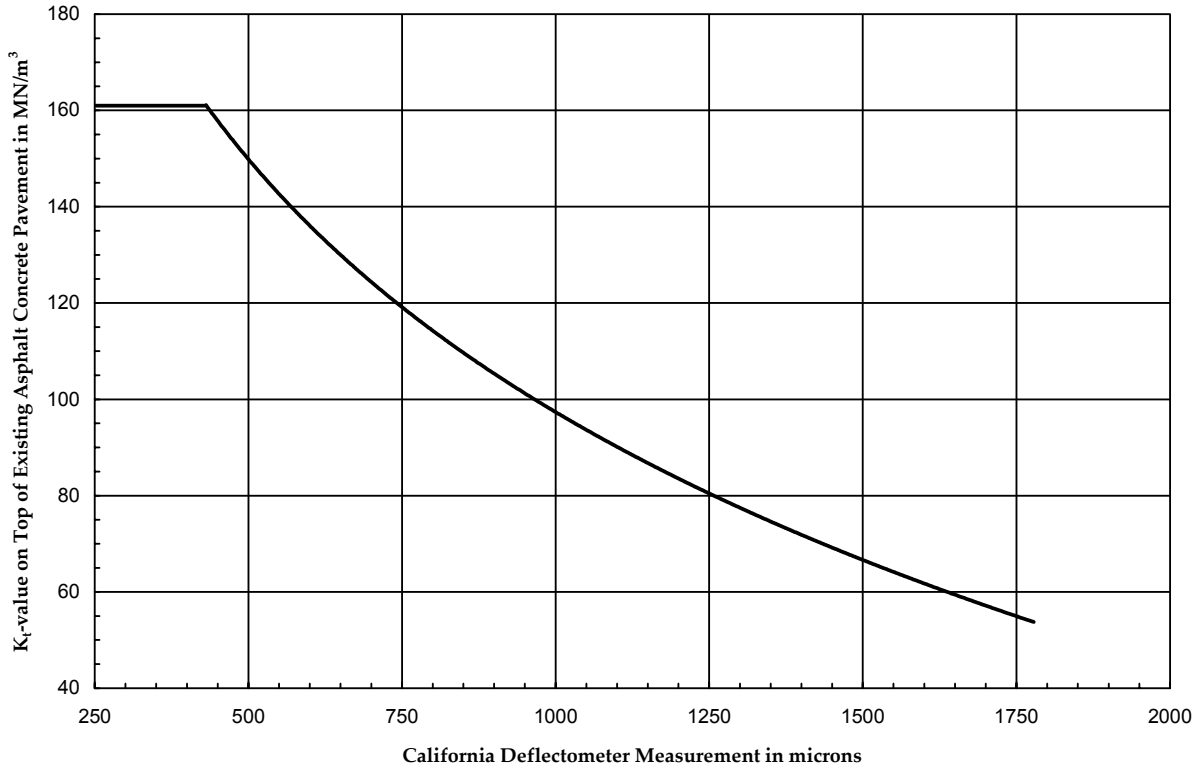

Figure 1. Modulus of Reaction versus Deflection for Asphalt Concrete Pavement