

RESEARCH PROBLEM STATEMENT #PA-503

I – Problem Title

Simplified Test to Estimate Coefficient of Friction on Newly Treated Deck Surfaces (SO67)

II – Research Problem Statement

Question: How to develop a method to field test the coefficient of friction on bridge decks and large expansion joints that have been treated with methacrylate resin (or other treatment)? Existing methods do not provide for availability when the work is performed and thus many bridge decks have an unknown skid resistance when opened to traffic, which is a liability to the Department.

III – Objective

Establish a new simplified coefficient of friction test for field use that will allow measurement prior to opening the surface to public traffic. Such a test should be applicable to all surfaces; roadway pavement, bridge decks and large expansion assemblies. This would contribute to the Department's goal of achieving the best safety record in the nation.

IV – Background

California Test Method (CTM) 342 measures the coefficient of friction on concrete surfaces. During rehabilitation of bridge decks methacrylate resin is used to seal cracks within the concrete. A condition after application of the resin is the formation of a "slick" surface that is sanded prior to set to provide a reasonable amount of skid resistance. Deck treatment is often performed at night and timely testing is often impossible to complete. In addition, the current inventory of testing machines used for CTM 342 is aging and the maintenance and replacement parts are becoming increasingly difficult to obtain.

V – Statement of Urgency and Benefits

The successful resolution of this problem would support the Department's Mission of Improving Mobility and its Goals for Reliability, Performance and Safety. The specifications require the treated deck surface to pass CA Test Method 342 prior to opening to traffic. A simplified test would assure project delivery on time and within budget, reduce construction impacts on the traveling public and maintain an acceptable quality assurance level of the skid resistance value on the newly treated deck surfaces and large expansion joints.

Present procedures require travel of a tester from only a few sites statewide to a jobsite(s). This work is generally done at night for rehabilitation projects and frequently requires additional lane closures. Even when only considering the rehabilitation projects, with an average of \$1000/test (includes man, equipment & travel costs) and approximately 100 tests locations (bridges statewide) per year the savings would be \$1 million. Additional savings would be realized through reduced lane closures for the contractor, State personnel time and earlier public use.

VI –Related Research

None known.

VII – Deployment Potential

The Department's California Test Methods Manual will be updated based on project results.