Comparison of Statistically-based End-result and Performance-related Specifications for Quality Control

By

Sameh A. Galal
Assistant Professor of Highways and Traffic Engineering
Cairo University – Fayoum Branch

Abstract

Statistically-based end-result specifications (ERS) have been adopted by many highway agencies. These specification shift the burden of process control from the agency to the contractor by allowing the contractor to choose the methods and procedures to accomplish the work. The agency then accepts or rejects the work based on the results of the acceptance test. ERS specify minimum or maximum tests results (or percent defective limitations) required for work to be acceptable. The test results or limitations are based on unbiased statistically quality assurance procedures. The main deficiency of ERS is the dependence of payment schedules on the contractor's present performance task ignoring what might be the long-term performance of the pavement. This deficiency is what has given rise to the development of performance-related specification (PRS). In the PRS the anticipated performance of the as-constructed pavement is predicted using many mathematical algorithms and then compared with the performance of the as-designed pavement to calculate the contractor pay factor. In this paper a comparison between the procedure of statistically-based ERS and PRS is presented. A case study using data collected from the highways network in Egypt is examined and presented in this study.