

TECHNICAL REPORT STANDARD TITLE PAGE

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<b>16. ABSTRACT</b> <p>In 1996, the Oklahoma Department of Transportation (ODOT) drafted a set of special provisions to address the quality control and quality assurance (QC/QA) of new asphalt concrete (AC) pavements, portland cement concrete (PCC) pavements, and concrete bridge decks using "Percent-within-Limits" (PWL) specifications. Those QC/QA special provisions have never been implemented by ODOT. However, in 1998, the Oklahoma Transportation Authority (OTA) adapted the AC and PCC versions of those special provisions for use on over \$150 million worth of turnpike paving projects. In 2002, as the final OTA projects were nearing completion, ODOT commissioned this study to evaluate the implementation of OTA's QC/QA PWL specifications. The aim of the study was to address the following broad objectives:</p> <ul style="list-style-type: none"> <li>• Provide a means for objective assessment by ODOT of the implementation of percent-within-limits specifications.</li> <li>• Investigate alternatives for dealing with quality characteristics having non-normal distributions.</li> <li>• Investigate alternatives for limiting contractor exposure under percent-within-limits specifications due to variability in test methods and procedures.</li> <li>• Identify suitable adjustments to percent-within-limits specification limits for various quality characteristics.</li> <li>• Provide guidelines and recommendations concerning statistical methods for quality assurance testing.</li> </ul> <p>In addition to the above objectives, the following key conclusions are discussed:</p> <ul style="list-style-type: none"> <li>• Overall, the contractors' processes demonstrated high capability with respect to the specified quality levels.</li> <li>• Greater emphasis is needed on statistical process control.</li> <li>• Non-normality was present, but not a significant problem.</li> <li>• Testing precision throughout the industry appears marginal at best—across-the-board improvements are needed.</li> <li>• Minor changes to the specification limits are recommended.</li> </ul>					
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