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<p>15. Abstract</p> <p>The Oklahoma Department of Transportation (ODOT) is considering switching its method of payment for hot mix asphalt (HMA) construction from their current procedure to a Percent Within Limits (PWL) specification. Quality characteristics are percent asphalt content (%AC), percent laboratory compacted air voids (%AV) and percent roadway density (%RD). As the PWL methodology is new to both ODOT and its contractors, there is concern that differences between the methodologies could result in significant differences in the payments awarded for contracted HMA work.</p> <p>A risk based simulation approach, using Monte Carlo simulation, was structured to evaluate the probabilities that PWL's generated randomly from a representative data base structured from ODOT paving projects would be within "acceptable" limits. In this way ODOT would be able to assess the expected performance and pay structure resulting from adoption of the PWL methodology against a set of previously collected data.</p> <p>The data set provided by ODOT showed that contractors are, on average, hitting the target value for asphalt content but running 0.37 and 0.9 percent below the target value for %AV and %RD, respectively. Comparisons of the ODOT generated data to data sets found in the literature indicate that the ODOT data set contains a high measure of control, while the simulation efforts showed that average performance for both %AC and %RD would earn bonuses but less than full pay for %AV, and less than full pay for the lot.</p> <p>The draft PWL specification as currently written appears to not fairly reward a contractor for a high level of quality control. Recommendations for adjustments in the target limits and specification limits were made. It is recommended that ODOT proceed slowly with the implementation of PWL specifications until a sufficiently large data base can be obtained and the analysis repeated to verify any changes to specification and target limits.</p>			
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