DATA PRE-PROCESSING TECHNIQUES FOR PAVEMENT STRUCTURAL EVALUATION

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ABSTRACT
Pavement surface defects' measurements constitute the primary step of evaluating the performance of flexible pavements. However, the importance of assessing the features, quality and quantity of such data prior to any form of subsequent analysis should not be overlooked as it may affect the results of the analysis significantly. To this end, this paper discusses procedures and associated criteria for data sets that facilitate an understanding of the underlying structures of the data. Such criteria may include spatial coverage and completeness, accuracy, repeatability, reproducibility and currency. Then the paper shows how statistical tests may be used to identify data that do not follow the general trend, examines the importance of understanding the effects of incomplete data sets or data that do not follow a normal distribution, investigates the correlation between different data types of the same data set and examines how the variability of defect data collected from consecutive road sections may be considered in the pavement evaluation process. The above is demonstrated by analysing data sets obtained from two Long Term Pavement Performance (LTPP) databases.

KEY WORDS: Data, statistical analysis, road, deflection, FWD