

عنوان مقاله:

Predicting a Pavement Roughness on the Basis of PCI Data

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خلاصه مقاله:

Pavement deterioration is a factor contributing to the higher roughness of the road and lower driving comfort in road trips. The pavement roughness measurement has long been an especially important topic to the practitioners. The pavement condition index (PCI) and the international roughness index (IRI) have been applied as two key measures of the quality and performance of the road pavement at the level of project or the road network. Since the pavement condition assessment across a road network by means of the PCI is highly expensive, the present research aims at estimating the PCI based on the IRI to save time and money while evaluating the pavement condition across a road network. For this purpose, we considered three IRI and PCI measurements over main suburban roads in a cold-weather area during a period of ۶ years. Firstly, the independence of errors was controlled using the Durbin – Watson statistic, followed by evaluating the normality of the data using the Kolmogorov – Smirnov and the Shapiro – Wilk tests. In order to measure the correlation of the normal data, we used the Pearson's tests. Results of regression analysis between IRI and PCI showed that the best equation describing their association is a linear inverse model with an $R^2 = 0.992$. A statistical comparison was made between the observed and predicted PCI values and model developed in the present research was further compared to similar research works, exhibiting acceptable agreement of the results

کلمات کلیدی:

PCI, IRI, Regression Model, Road, Deterioration

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