Study on the Pavement Structural Performance of Highways in the North China Region Based on Pavement Distress and Ground Penetrating Radar

Authors : Mingwei Yi, Liujie Guo, Zongjun Pan, Xiang Lin, Xiaoming Yi

Abstract : With the rapid expansion of road construction mileage in China, the scale of road maintenance needs has concurrently escalated. As the service life of roads extends, the design of pavement repair and maintenance emerges as a crucial component in preserving the excellent performance of the pavement. The remaining service life of asphalt pavement structure is a vital parameter in the lifecycle maintenance design of asphalt pavements. Based on an analysis of pavement structural integrity, this study introduces a characterization and assessment of the remaining life of existing asphalt pavement structures. It proposes indicators such as the transverse crack spacing and the length of longitudinal cracks. The transverse crack spacing decreases with an increase in maintenance intervals and with the extended use of semi-rigid base layer structures, although this trend becomes less pronounced after maintenance intervals exceed 4 years. The length of longitudinal cracks increases with longer maintenance intervals, but this trend weakens after five years. This system can support the enhancement of standardization and scientific design in highway maintenance decision-making processes.

Keywords : structural integrity, highways, pavement evaluation, asphalt concrete pavement
Conference Title : ICHAMI 2024 : International Conference on Highway Asset Management Innovation
Conference Location : Rome, Italy
Conference Dates : November 11-12, 2024