Condition Assessment of Newly Constructed Rural Roads in Central and North Central Provinces

Tissa U. Liyanage, Gayashan Dalpethado, Udayanthi K. Ilangasinghe, Chirath Pathinayake

Abstract: The importance of rural road improvements through integrated road transport accessibility for rural economic development has been identified in the recent past by the Government of Sri Lanka. Road improvement project namely iRoads has considered the rural community access roads for improvements to certain standards with good surfacing even though the ownership of these roads does not belong to Central Road Development Authority (RDA) of Sri Lanka. The maintenance of the improved roads to sustain the required serviceability period is a challenge faced by officials. Therefore, development of a relationship between different road assets and their condition throughout the project life cycle is a very important task during the post project evaluation process for the intended improvements. The main road and road structure condition attributes are considered in this research to identify the relationship between expected condition properties and the service factors such as traffic levels, climate and environment.

The main objective of this study is to evaluate the condition of the recently constructed 508km of access roads in North Central Province (NCP) and 283 Kilometre of access roads in Central Province (CP). Assessment of the road condition is carried out based on the results of a visual inspection survey in which the type, severity, quantity of distresses are observed for the pavement as well as the structures and a road roughness survey. The variations in the road conditions with different parameters such as the location, terrain, carriageway width, and traffic volume are analysed through various analysis techniques and statistical testing. The expected outcome of the research study are to develop any correlation between the distress modes such as Rutting, Ravelling, Deformations, Cracks, Potholes that could be compared and verified with the roughness of the road (IRI) that has been measured throughout all roads for entire length using a modern Roughnometer. The outcome of the research shall be useful to predetermine the expected future maintenance levels and also to identify the relationship between road failure modes and the measured road roughness in the rural low volume access roads. The identified road failure mode and the conditions are interrelated and developed to explore the relationships in a way that such outcomes are used for decision making in the road asset management systems (RAMS). The most economic approaches and timely require maintenance shall be organize and line up with reference to the findings of this research on road condition aspects in similar geographical and environment conditions.

Keywords: Road Condition, Rural Roads, Pavement Distresses, Road Asset Management, IRI,