Geographic Information System-Based Identification of Road Traffic Crash Hotspots on Rural Roads in Oman

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Abstract : The use of Geographic Information System (GIS) tools in the analysis of traffic crash data can help to identify locations or hotspots with high instances or risk of traffic crashes. The identification of traffic crash hotspots can effectively improve road safety measures. Mapping of road traffic crash hotspots can help the concerned authorities to give priority and take targeted measures and improvements to the road structure at these locations to reduce traffic crashes and fatalities. In Oman, there are countless rural roads that have more risks for traveling vehicles compared to urban roads. The likelihood of traffic crashes as well as fatality rate may increase with the presence of risks that are associated with the rural type of community. In this paper, the traffic crash hotspots on rural roads in Oman are specified using spatial analysis methods in GIS and traffic crash data. These hotspots are ranked based on the frequency of traffic crash occurrence (i.e., number of traffic crashes) and the rate of fatalities. The result of this study presents a map visualization of locations on rural roads with high traffic crashes and high fatalities rates.

Keywords : road safety, rural roads, traffic crash, GIS tools

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