IDENTIFICATION OF ACCIDENT BLACK SPOTS AND CAUSING FACTORS ON "A9" ROAD IN NORTHERN PROVINCE

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Declaration of the candidate & Supervisor

I declare that this is my own work and this thesis/dissertation does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or institute of higher learning, and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

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Abstract

A9 (Kandy-Jaffna Highway) was opened for traffic after renovation of section from Vavuniya to Jaffna in 2013. Even though it has provided several safety precautions, the most number of accidents reported along the highway have occurred in the district of Jaffna, Kilinochchi and Vavuniya. Therefore identifying accident black spot locations and cause for the accidents where majority of the accidents taken place are essential for immediate safety measures and improvements.

The main research objectives are to identify accidents black spot locations, identify possible causes for the accident and calculate the accident rate based on vehicle travel kilometre.

According to this research study, fifteen most critical accident black spot locations were identified by using three scientific method namely Accident rate, Accident frequency and Weighted severity index in the A9 road section from Vavuniya to Jaffna. Accident locations were grouped into nearest 100m distance and the fifteen most critical locations are 300+000 –300+100 km, 303+000-303+100 km, 177+000-177+100 km, 312+200-312+300 km, 307+000-307+100 km, 299+100-299+200 km, 305+000-305+100 km, 301+100-301+200 km, 176+800-176+900 km, 298+400-298+500 km, 309+000-309+100 km, 176+700-176+800 km, 308+100-308+200 km, 305+100-305+200 km and 176+100-176+200 km. Primary causing factor for the accidents, as per the accident records, is human and environment also act as a key factor for some accidents. Accidents happened during day time are twice higher than that of night time. However, this trend was same in each of the section along the road.

Even though the highest accident rate of around 1.31×10^{-6} veh km was noted from Palai to Meesalai east section. Accident rates in each section have increased from year 2012 to 2014. When comparing A9 road section from Vavuniya to Jaffna with A9 road section from Kandy to Vavuniya with same corridor geometry in 2014, A9 road section from Vavuniya to Jaffna shows higher accident rate (0.68×10^{-6} per vehicle kilometre travelled) than other corridors (0.47×10^{-6} per vehicle kilometre travelled). In addition, fatality rate in A9 road section from Vavuniya to Jaffna has increased from 2012 to 2014, which is considerably a higher value than fatality rates of road accidents in most of the other countries.

Key Words: Black spots identification, Weighted Severity Index, Accident rate, Accident frequency, Causing factors

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