UNIVERSITI TEKNOLOGI MARA

AN ANALYSIS OF PHYSICAL ROAD CHARACTERISTICS AND INFRASTRUCTURE AT ACCIDENT-PRONE JUNCTIONS IN UITM PUNCAK ALAM CAMPUS

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In the name of Allah, the Most Gracious, The Most Merciful.

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ABSTRACT

INTRODUCTION: Road traffic accidents pose a huge threat to modern communities since they cause injuries, disability, and sometimes fatality, as well as substantial economic and social implications. More than half of total crashes worldwide occur near or at junctions, hence making junctions one of the accident hotspots (FHWA, 2021).

METHODOLOGY: The primary goal of this cross-sectional study is to determine the physical factors that contribute to road accidents at the UiTM Puncak Alam Campus accident-prone junctions by using the Guidebook for Traffic and Safety Audit (MeTRA) provided by the Malaysian Institute of Road Safety Research (MIROS). Variable ranking method were employed to identify physical characteristics present at accident-prone junctions prior to analysis.

RESULT AND DISCUSSION: Overall, 14 key accident-prone areas were identified, with a total of 104 accidents recorded from year 2018-2022. 2018 had the highest accident rate of 1.9% per 1,000 population, with the majority of accidents occurring around the faculty area and Alam Bina Road. Eleven characteristics that require attention were identified and ranked based on the data. The least adhered-to variable is the use of staggered T-junctions since all audited junctions are not staggered. Meanwhile, the eleventh variable is the adequacy of lighting, with one junction having insufficient illumination. Other issues that must be addressed include fading and unreadable road markings at ten junctions, a lack of delineators to guide and alert drivers of dangers, and damaged plates and faded signage in high-traffic areas.

CONCLUSION: Taking into account all of the findings, this study provides indisputable support for the importance of physical road characteristics in providing road users with a safe and convenient experience. More studies should be undertaken to address the research gap by incorporating other significant components such as accident location bearings and vehicle type involved, which may then be utilised to correlate the physical road features with the number of accidents.

Keywords: *Road traffic collision, road safety audit, unsignalized junction, physical factors, vulnerable users*

CHAPTER 1

INTRODUCTION

1.1 Background of the study

A rising number of traffic accidents continues to be a global concern. Road traffic accidents pose a huge threat to modern communities since they cause injuries, disability, and sometimes fatality, as well as substantial economic and social implications. Globally, the number of road fatalities continues to be unacceptably high, with over 1.35 million people dying each year (Yan et al., 2021). It is anticipated to be the world's fifth leading cause of death (Djalante, 2020). In Malaysia alone, roughly 18 traffic accidents occur in Peninsular Malaysia each day, resulting in one death on average per hour (Musa et al., 2020).

One of the major causes of mortality and injury among adolescents and young adults is traffic accidents (Bojesen & Rayce, 2020). University students are included. There have been several reports of road accidents with minor injuries and fatalities in the Puncak Alam Campus. Several factors, including road characteristics and infrastructural factors, stand out as predictors of road traffic accidents. One of the accident-prone locations is at junctions. However, the main reason has not yet been found and requires additional investigation, such as via road safety audits provided by the Malaysian Institute of Road Safety Research (MIROS), in which rigorous planning, designing, and operation improve the technical elements of road traffic performance, hence reducing traffic accidents. Therefore, the purpose of this study is to assess the road characteristics and infrastructure at accident-prone junctions on the UiTM Puncak Alam Campus. Understanding the features and fundamental causes of accidents can aid in the prevention of similar errors and the strengthening of preventative measures in road safety (Djalante, 2020).